



Ratification  
Number 2014-157

## AN ORDINANCE

TO AMEND THE ZONING ORDINANCE OF THE CITY OF CHARLESTON BY CHANGING THE ZONE MAP, WHICH IS A PART THEREOF, SO THAT 546 RIVERBEND TRAIL AT SC HIGHWAY 41 (CAINHOY) (70.37 ACRES) (TMS #263-00-04-001) (COUNCIL DISTRICT 1), BE ZONED PLANNED UNIT DEVELOPMENT (PUD) CLASSIFICATION. (AS AMENDED)

BE IT ORDAINED BY THE MAYOR AND COUNCILMEMBERS OF CHARLESTON, IN CITY COUNCIL ASSEMBLED:

Section 1. That the Zoning Ordinance of the City of Charleston be, and the same hereby is amended, by changing the zone map thereof so that the below described property shall become a part thereof.

546 Riverbend Trail at SC Highway 41 (CainhoY) (70.37 acres) (TMS #263-00-04-001)

Section 2. That the said parcel of land described above shall be zoned Planned Unit Development (PUD) classification.

Section 3. This ordinance shall become effective upon ratification.

Ratified in City Council this 16<sup>th</sup> day of  
December in the Year of Our Lord,  
2014, in the 239<sup>th</sup> Year of Independence of the  
United States of America.

By:

  
Joseph P. Riley, Jr.  
Mayor, City of Charleston

Attest:

  
Vanessa Turner-Maybank  
Clerk of Council

## Zoning 3

546 Riverbend Trail & Hwy 41 (Cainhoy)

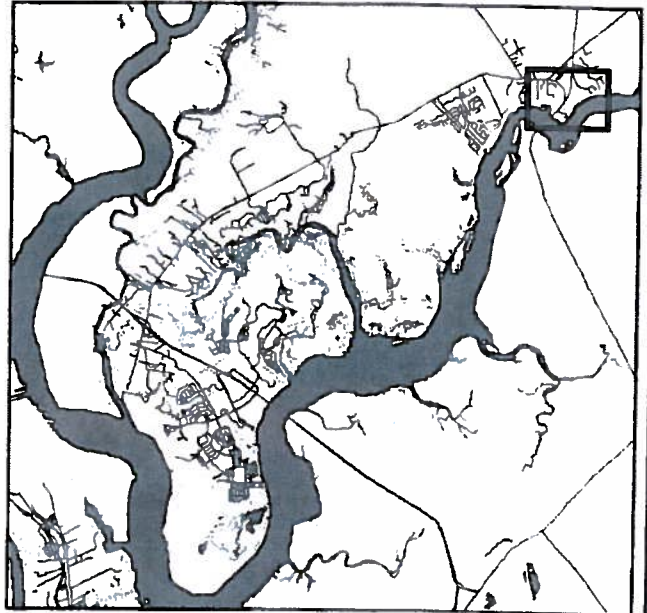
TMS# 2630004001

70.37 ac.

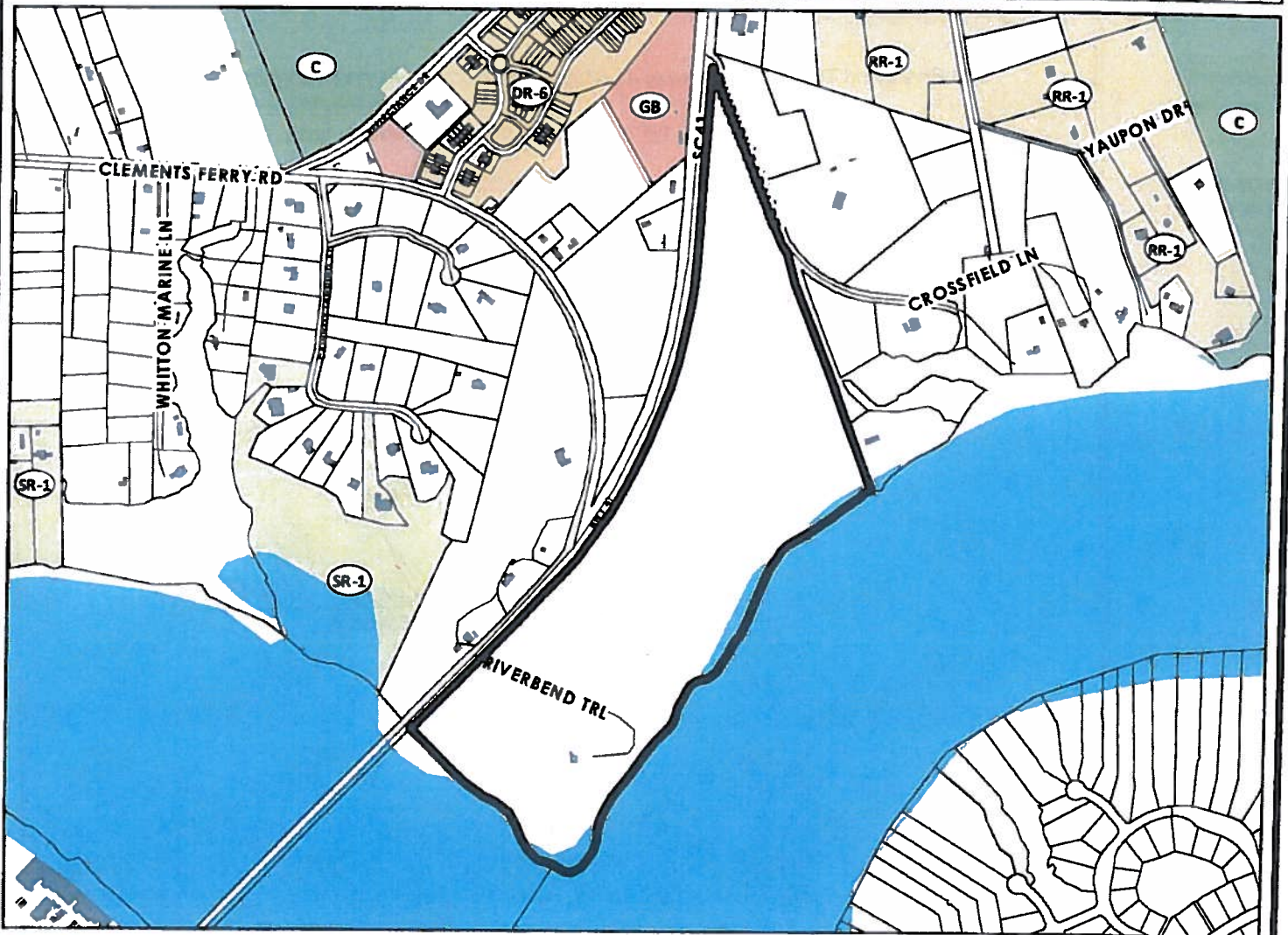
Request zoning of Planned Unit Development (PUD).  
Zoned Manufactured Residential (R-2) in Berkeley County.

Owner: Past Time Amusement Company

Area



Location



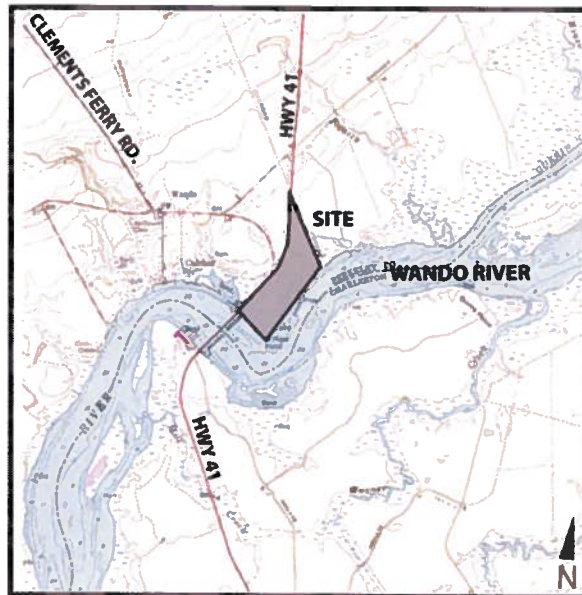


City Council Approved

Date: 12-16-2014

Ordinance #: 2014-157

# WANDO VILLAGE



**Developed By:**  
**The Beach Company**  
211 King Street #300  
Charleston, South Carolina  
29401

**Owners:**  
**Pastime Amusement, Inc. (Majority)**  
Mary Ellen Properties, LLC and Joyce Carolyn properties, LLC (Minority)

Project ID #: 140804-SC41-1

Revised: 11/19/14

Revised: 12/2/14

**THOMAS & HUTTON**  
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WWW.THOMASANDHUTTON.COM

Amended 4/11/2018 - see page 93

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## WANDO VILLAGE

### **1.) Property Overview and Development Intent**

The proposed Wando Village Planned Unit Development (The Property) consists of 70.37 contiguous acres located on the north side of the Wando River Bridge on SC Highway 41 (TMS #: 263-00-04-001). The Property is currently under the jurisdiction of Berkeley County and zoned as R2 - Manufactured Residential District. The majority of The Property is owned by Pastime Amusement, Inc., a subsidiary of The Beach Company, Inc. (The Developer). Mary Ellen Properties, LLC and Joyce Carolyn Properties, LLC are minority owners. This PUD Application is being submitted by The Property Owners concurrently with an Annexation application to the City of Charleston.

Currently, The Property is vacant and bounded by SC Highway 41 to the west and northwest, Tuxbury Farm Road to the northeast, and the Wando River to the south and east (See Exhibits 5-6). The Property is currently accessible from Riverbend Trail. Current conditions indicate that The Property was used as a timber tract at one time. There are a few hardwood specimens onsite that will be preserved if all possible. All development shall be subject to the specific provisions of the Tree Protection Requirements as outlined in Article 3, Part 6 of the City of Charleston Zoning Ordinance.

The wetland delineation included in the attached exhibits was conducted in 2006. A wetland delineation was also conducted for this PUD application in 2014, and The Owner is currently awaiting its approval. According to the Wetland Letter (Appendix 2), the surveyor estimates that there are approximately 2.62 acres of on-site freshwater wetlands, 6.83 acres of critical area, and 50.24 acres of highland. These figures do not include the approximately 10.7-acre critical area along the Wando River (approximately 10.7 acres). According to the 2006 survey, there are 12,330 linear feet of Critical Line on The Property of which approximately 4,800 are along the Wando River.

To ensure that The Property is developed in a comprehensive manner that incorporates open space and preserves natural features while offering a rich mix of uses and compatibility with adjacent development, The Property Owners request that PUD zoning be assigned to The Property. The PUD regulations outlined in this document will foster development that is consistent with The Property's current designation is Urban in the City of Charleston's *Century V Comprehensive Plan Update 2010* (Exhibit 2).

The intent of the PUD regulations are to create a publicly accessible Mixed-Use Village on the Wando River. The conceptual Land Use Plan illustrates the location of the two primary development pods and the permitted uses and specific requirements for each. Because the Land Use Plan (Exhibit 6) is conceptual in nature, all site plans, phasing plans, subdivision concept plans, preliminary plats, road construction plans, and final plats shall be submitted to the appropriate authority for review and approval pursuant to the provisions of this document and the City of Charleston Zoning Ordinance.

Approval of this document including the attached Land Use Plan (Exhibit 6) establishes the specific site development regulations for future development of The Property. Development of Wando Village PUD shall comply with American Disability Act (ADA) standards current at the time of development. As the community develops, input from City of Charleston staff will be incorporated into the site layout and the design of associated amenities. Unless specified otherwise within this document, all applicable City of Charleston Ordinances shall apply to the development of Wando Village.

SCDOT is currently developing plans for the reconstruction of the Highway 41 Bridge that crosses the Wando River. The PUD boundaries and circulation systems will require minor adjustments based upon the new right-of-way and roadway alignments. As illustrated in the Land Use Plan, a roundabout may be proposed for the intersection of Clements Ferry Road and Highway 41. The Owners reserve the right to adjust the circulation and the location of entrances to accommodate the roundabout if it is implemented. SCDOT approval of driveway locations and separations shall be required, and sight distance visibility at

## WANDO VILLAGE

all exits and/or intersections will be maintained in accordance with the SCDOT Access and Roadside Management Standards (ARMS) Manual.

The proposed Wando Village will be a walkable medium-density Waterfront Village offering increased public interaction with the natural beauty of the Wando River. Homes along the Wando River shall be built with regard for the context of the existing homes across the river in Dunes West. Attached Townhomes and Multi-Family Buildings are also permitted with special buffer requirements along SC Highway 41 to minimize adverse visual impacts.

**a) Planning Commission Approval and Conditions:**

- a. The Owners will continue to work with The City on OCRM buffer standards.
- b. The Owners will continue to work with The City on Lot Size and Placement in the area in proximity to Tuxbury Road at the North End of the Property.

### **2.) Master Plan**

**a) Plat:** Exhibit 3 features a Recorded Plat of the survey and wetlands as delineated in 2006. This document will be updated to reflect the 2014 wetland survey once that document is approved (See Appendix 2). The Recorded Plat includes the exact location, size, shape, gross acreage, and ownership as well as the approximate locations of all freshwater and saltwater wetlands and other critical areas.

**b) Site Analysis:** In addition to the property line and wetland delineations in the Recorded Plat, the Site Analysis (Exhibit 4), which was also conducted in 2006, illustrates the location of existing hardwood trees and manmade features including overhead power lines, an existing structure, and an archaeological excavation site. All development shall be subject to the specific provisions of the Tree Protection Requirements as outlined in Article 3, Part 6 of the City of Charleston Zoning Ordinance.

The Property has not been surveyed for topography, but five foot contours were extracted from the US Geological Survey and are also included on the Site Analysis. Due to the extreme flatness of the site, only one 10 foot contour appears at the northernmost tip of the property, and the 5 foot contours roughly follow the OCRM critical line. Complete topographic surveys with elevations at one-foot (1') intervals based on the North American Vertical Datum of 1988 (NAVD88) will be conducted for individual sites as development occurs.

A Report on the archeological site was published in January 2007 by S&ME. In summary, the archaeological excavation is the site of a nineteenth century brickyard and borrow pit. In the report, S&ME states that excavation and data recovery efforts were sufficient to mitigate any adverse effects of development and recommends that construction be allowed to proceed without additional cultural resource investigations.

**c) Aerial Overlay:** Exhibit 5 provides an overlay of the site boundary on an aerial photograph.

**d) Land Use Plan:** Exhibit 6 is the proposed Land Use Plan that shows the locations and densities of the development pods, open space and recreational areas, and existing adjacent land uses. The plan also includes the conceptual layout for major vehicular and pedestrian circulation systems, drainage features, and proposed buffers. The Land Use Plan is intended to act as a guide and framework for development that will occur over a long period of time. Specific locations of

## WANDO VILLAGE

buildings and uses, however, are subject to change and amendment during the growth and development of this property.

All new utilities serving the development will be placed underground. The developer will submit utility designs for approval by all respective utility services. A Conceptual Utility Plan is included as Exhibit 10. Letters of Coordination and existing service maps for water and sanitary sewer service from Charleston Water System are provided in Appendix 3. All City of Charleston Fire Codes will be followed during submittals and as development occurs.

**3.) Permitted Uses by Development Pod -** Two (2) distinct development pods are indicated on the Land Use Plan. This dynamic allows for flexibility to adapt to changing market conditions while ensuring the development of an integrated, walkable, high-quality community. Specific permitted uses are as follows:

Use	District	
	Mixed-Use	Estate Lots
Office/Professional/Medical	X	
Retail	X	
Dining/Restaurant/Bar	X	
Community Docks	X	X
Boat Storage	X	
Single-Family Residential	X	X
Townhomes	X	X
Multi-Family Residential	X	
Hotel/Bed & Breakfast	X	
Senior Living	X	

### **4.) PUD Zoning Regulations by Development Pod**

a) **Estate Lots** - The design intent for the Estate Lots District is to develop Single-Family Estate Lots along the Wando River with the potential for Townhomes as well. The plan for the Estate Lots District will be carefully developed to be sensitive to the river's edge and to existing neighbors along the river. Accessory units such as granny flats are permitted on single-family lots.

Permitted Dwelling Units: single-family detached, single family attached, and townhomes.

#### Dimensional Requirements:

##### *Single-Family Detached*

Minimum Lot Size:	5,000 sf
Minimum Lot Width:	50'
Minimum Lot Depth:	100'
Minimum Front Yard:	15' (50' for Accessory structures)
Minimum Rear Yard:	15'
Minimum Side Yard:	9'
Maximum Lot Occupancy:	60%
Maximum Building Height:	3 stories (one additional level of non-conditioned space permitted at ground level)

## WANDO VILLAGE

Max. Fence/Wall Height: 6'

### *Single-Family Attached and Townhomes*

Minimum Lot Size: 1,600 sf

Minimum Lot Width: 16'

Minimum Lot Depth: 100'

Minimum Front Yard: 4' (25' with front parking)

Minimum Rear Yard: 25' (35' with rear parking)

Minimum Side Yard: 20' between structures; 10' between end structure and side lot line

Maximum Lot Occupancy: 60%

Maximum Building Height: 3 stories (one additional level of non-conditioned space permitted at ground level)

Max. Fence/Wall Height: 6'

**b) Mixed-Use** - The areas designated for Mixed-Use District Zoning offer the most convenient access to Highway 41. The proposed zoning for this district will encourage a higher density mix of uses to include retail, offices, and other commercial facilities. Multi-family housing, residential lots, and a waterfront park are also permitted in this area. For the purposes of determining specific setback and buffer requirements, buildings featuring a mix of either residential and commercial or residential and office uses shall follow the requirements of multi-family buildings or townhomes depending upon their configuration. Townhomes within the Mixed-Use district shall follow the requirements outlined in the Estate Lots section above.

Permitted Dwelling Units: single-family detached, single family attached, townhomes, multi-family residential, and mixed-use buildings. Densities will migrate increasingly from the Tuxbury Road Boundary towards the Wando Bridge per the District Plan shown in Exhibit 6.

### Dimensional Requirements:

#### *Multi-Family Apartments*

Minimum Lot Size: 1,100 sf/unit

*For all Uses within the Mixed-Use District (excluding Townhomes):*

Front yards must meet one of the following conditions:

- i. Minimum setback and landscape buffer requirements not to include OCRM Critical Line buffers are waived where any building or structure is constructed so that a minimum of 60% of the lot frontage is occupied by a building façade that abuts the front property line provided that the primary entrance to the building is located on this façade. Building façade indentations or extensions which are part of the building's architectural design shall count toward the minimum 60% lot frontage requirement. On a corner lot, the building façade shall occupy at least 60% of the frontage on the primary street and no less than 25% on the secondary street. Additionally, a secondary entrance must be located on the secondary street façade. On a corner lot, the abutting building frontages must extend to the corner or have a corner entrance in which case the primary and secondary entrance requirements are waived. Service entrances may not count toward the primary, secondary, or corner entrance requirements. Stoops and open porches, bay windows, and balconies may extend up to 4 feet into the right-of-way, with an encroachment permit from the City, provided at least 5 feet of clear sidewalk passage remains. Stoops and open porches, bay windows, and balconies may extend up to 7 feet into a front set-back zone. Loading docks,

## WANDO VILLAGE

service areas, and trash disposal facilities shall not face streets, parks, squares or significant pedestrian spaces.

- ii. Where the conditions of (i) are not met, the minimum front yard depth for all structures is ten (10) feet;

See zoning approved lot standards  
on page 93 of this document for  
mixed-use detached residential lots

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### Minimum Side and Rear Yard:

10' shall be required along each rear and side lot line; except that where a firewall meeting the standards of the current edition of the city's building code is constructed at the property line; the side or rear yard requirement may be waived along the respective side or rear lot line.

### Maximum Building Height:

3 stories with one additional level of non-conditioned space permitted at the ground level. All local building codes applicable at the time of construction must be met with regard to fire ratings, fire exits, and all other requirements in the current International Building Code.

Minimum Building Height: 1.5 stories

Maximum Lot Occupancy: 90%

**c) Parking Requirements** – Except as noted below, parking is to be provided for all uses per the City of Charleston Zoning Ordinance standards current at the time of development. Within all districts, parking may be located under buildings. Parking structures and shared parking areas are allowed so long as they comply with the ULI standards for shared parking. In any off-street parking lot, no more than 10 consecutive parking spaces are permitted without a landscape island. Each island is to be planted with a minimum of 1 canopy tree as well as ground cover and/or shrubs. Islands are to be protected with a 6" barrier constructed of raised concrete curbing or equivalent materials.

### Mixed-Use/Commercial

Dining/Restaurant/Bar	1/200 sf, plus ½ for each staff
Multi-Family Residential	1.5/unit
Retail	1/250 gross sf
Office/Professional/Medical	1/300 sf

### Residential

Multi-Family Residential	1.5/unit
Townhome	1.5/unit
Single-Family	2/home (off street)

## **5.) Open Space and Recreational Areas**

The Land Use Plan indicates several areas to be dedicated as open space to serve the recreational needs of people living in, working in, and visiting Wando Village while engaging them with adjacent natural resources. Conceptually, the usable open spaces may incorporate walks, ponds, pervious paths, pools, buffers, trails, seating, lighting, and plantings. The pervious paths may be placed within designated access easements on private property within the critical line buffers so long as they are set back a minimum of 20 feet from the OCRM Critical Line. Exceptions to the 20-foot setback are permissible to provide access to water dependent structures. Pedestrian paths will connect the Estate Lots District to the Mixed-Use areas which will feature a series of accessible parks. The waterfront park will offer extensive views and allow users to directly engage with the Wando River and its marshes. All open space and recreational areas outside of the public right-of-way will be owned and maintained by the Property Owners Association (POA) as described in Section 9 of this document. Upon completion, all portions of the Wando Village PUD will be connected through ADA accessible pedestrian paths or sidewalks. See the Land Use Plan (Exhibit 6) for open space requirement calculations and locations. Within each development phase, all open space amenities will be constructed prior to final plat approval.

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### **6.) Landscape and Buffer Requirements**

In addition to the buffers outlined below, a 100' undisturbed buffer shall be maintained along the northern property line abutting Tuxbury Farm Road. The following Buffer Types refer to the City of Charleston Zoning Ordinance designations. Please refer to the City of Charleston Zoning Ordinance for buffer specifications. Landscape material used for buffer and accent planting should emphasize native materials. All materials, sizes, and spacing shall conform to the standards set forth in the City of Charleston Zoning Ordinance:

**Between any use and Highway 41: Type C Buffer (average width of 25', not to go below 15').**

**Wherever a multi-family building (excluding townhomes), mixed-use building, or any nonresidential use is proposed for a site or lot adjoining a single-family or townhome lot: Type B Buffer (minimum width of 15').**

Buffer plantings must be planned so as to screen between uses and provide a visual barrier. Existing plants may count toward buffer requirements so long as they fulfill all requirements of this section and all City of Charleston landscape and buffering requirements. Buffers shall be located along the perimeter of a lot or parcel and shall extend to the boundary line of the lot or parcel. Buffers shall not be located on any portion of an existing public or private street right-of-way. Where utility or drainage easements exist along property lines, the buffer shall be located adjacent to the easement and may be reduced by the width of the easement on the property where the buffer is required or twenty-five percent (25%) of the required buffer width, whichever is smaller.

Street trees are to be planted along all roadways according to City of Charleston Subdivision regulations (Article 8, Part 4, Section 54-831(c)).

Along OCRM Critical Lines, the following buffers apply:

#### Estate Lots & Mixed-Use Areas

Type L Buffer (minimum 20' width; see City of Charleston Zoning Ordinance, Article 3, Part 8, Section 54-347 and 54-348 )

10' building setback from the buffer line

#### POA Land

Limited removal of vegetation within the OCRM buffer on POA land is permissible for views and access to water dependent structures, subject to POA guidelines. Approved boat ramps and docks, appurtenant access facilities, and other publicly accessible uses such as concessions, public yachting facilities, and civic and recreational facilities may be installed within this buffer within POA lands. Any removal of a grand tree within these buffers will require mitigation as specified in the City of Charleston Zoning Ordinance (Article 3, Part 6, Sections 54-325 through 54-339).

### **7.) Traffic Impact Study**

Appendix 1 is a Traffic Impact Analysis prepared for the Beach Company based upon the proposed Wando Village PUD. The document is still considered to be in draft form until it is reviewed and approved by both the City of Charleston and SC Department of Transportation. Revised versions of the Traffic Impact Analysis will be submitted to the City of Charleston as they develop. Approval of the PUD does not guarantee approval of the traffic impact study as submitted. The City of Charleston Traffic and

## WANDO VILLAGE

Transportation Department (or SCDOT if SCDOT roads are impacted) has the final authority to approve site related traffic impacts and mitigation. Additional traffic impact analyses may be required on a per site/project basis if the proposed impacts are determined to be outside of the original scope of the PUD.

### **8.) Drainage Basin Analysis**

All land within the PUD drains directly into the upper reaches of the Wando River as shown in Exhibit 8: Regional Watershed Map. The Wando River outlets into the Cooper River which flows directly into Charleston Harbor. As shown in Exhibit 9: Storm Drainage Patterns, current storm drainage either sheet flows directly into the Wando River (indicated by yellow arrows), or follows one of three other flow patterns that also discharge into the Wando River via tidal creeks. As shown on the Land Use Plan, approximately 5 acres of The Property will be devoted to stormwater retention. The stormwater drainage system will be designed to conform to the City of Charleston Stormwater Design Standards Manual and other State regulatory agency standards to ensure that development meets all stormwater discharge quality and quantity requirements. Any new topo surveys will be 1' intervals based on NAV88 datum.

### **9.) Density**

The Wando Village PUD application proposes to maintain its current allowable density range of 8-12 units/acre. According to the 2014 draft wetland survey, the Property contains approximately 52.86 acres of highland including freshwater wetlands. **The maximum build-out is 416 units.**

### **10.) Rights-of-Way**

The Wando Village PUD is limited to four points of ingress/egress along SC Highway 41. Approximate locations of these access points are shown in Exhibit 6; however, spacing will be adjusted according the proposed development, the proposed Highway 41 realignment, and SCDOT encroachment permits. SCDOT approval will be required for all driveway locations, and sight distance visibility at all exits and/or intersections will be maintained in accordance with the SCDOT Access and Roadside Management Standards (ARMS) Manual. The City of Charleston Department of Traffic & Transportation has the final authority to approve site related traffic impacts and mitigation. Additional traffic impact analyses may be required on a per site/project basis if the impact is determined to be outside of the original scope of the PUD.

See Exhibit 7 for typical cross sections proposed for internal roadways in Wando Village. All roads within the PUD are anticipated to be public and constructed in accordance with accepted engineering standards. Public and private roadway designs will apply civil design software to check the adequacy, maneuverability, and safety of all proposed sections and geometrics. Within the mixed-use area, plans will strive to create a grid of streets and blocks. While encouraged where feasible, on-street parking shall only be permitted in designated parking areas within the public right-of-way. Sidewalks or trails are to be provided along all roadways within the PUD for pedestrian access. Street lights are to be required in all public rights-of-way as per City of Charleston ordinances.

Other than occasional deliveries, heavy truck traffic will be prohibited within the development. No container storage or trailer stacking will be allowed. Overnight parking of eighteen-wheel vehicles is strictly prohibited.

### **11.) Property Owners Association and Design Review**

Ownership and maintenance of all common open space areas not included in the public right-of-way shall be the responsibility of the Property Owners Association (POA). Such responsibilities include, but are not

## **WANDO VILLAGE**

limited to, landscaping, parking stalls, pedestrian paths, drainage, lighting, ponds, and private utilities. The Subdivision Concept Plan will outline the construction of these pedestrian paths, parks, and other open spaces. POA amenity areas are required to receive City of Charleston Technical Review Committee (TRC) review and approval, except for mail kiosks and tot lots.

Membership in the POA will be open to all persons having ownership of properties within the PUD. The POA will be managed by The Developer (or its designated representative) collecting all fees and handling POA responsibilities until such time that over one-half of the total developable land within the PUD is sold, at which time duties will be turned over to a successor chosen by the POA. A POA Board of Directors will be created to represent both the commercial and residential sections of the development. A declaration of covenants, conditions, and restrictions shall outline the specific responsibilities of the POA and shall run with the land.

Amenity space will be dedicated for uses such as a community pool and parks to serve the residential portion of the development. The initial phase of construction of these features will be the responsibility of The Developer until the POA is established. Within each development phase, all open space amenities will be constructed prior to final plat approval. Upon project completion, the POA is responsible for connecting any gaps in pedestrian connectivity as outlined in the POA declaration of covenants, conditions, and restrictions.

The Developer and POA reserve the right to establish and enforce Design Guidelines and/or a designated review board to review and approve all elements of building and site design. The POA and/or its designee shall have reasonable authority to approve all aspects of site planning, landscape and exterior architecture to include aesthetic appropriateness, environmental implications, traffic impacts and any other site specific matters not delineated.

All non-residential buildings that abut the required buffer along SC Highway 41 shall be required to follow the City of Charleston Design Review Board (DRB) review and approval process.

### **12.) Signage**

One 'master' development sign shall be allowed within the required buffer at each entry point along SC Highway 41. Such signs shall be monument style and will require DRB review and approval. Additionally, one 'master' developer sign shall be allowed for residential developments at each entry point along internal PUD roads. Such signs shall be monument style and will require POA review and approval.

All directional and traffic signage shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) Standards.

### **13.) Anticipated Phasing**

While still conceptual in nature, it is anticipated that initial development will occur in the portion of the Mixed-Use District along the Wando River to be followed by the Estate Lots District. Timelines and the order of development are subject to change depending upon SC Highway 41 realignment projects and market conditions.

## EXHIBITS

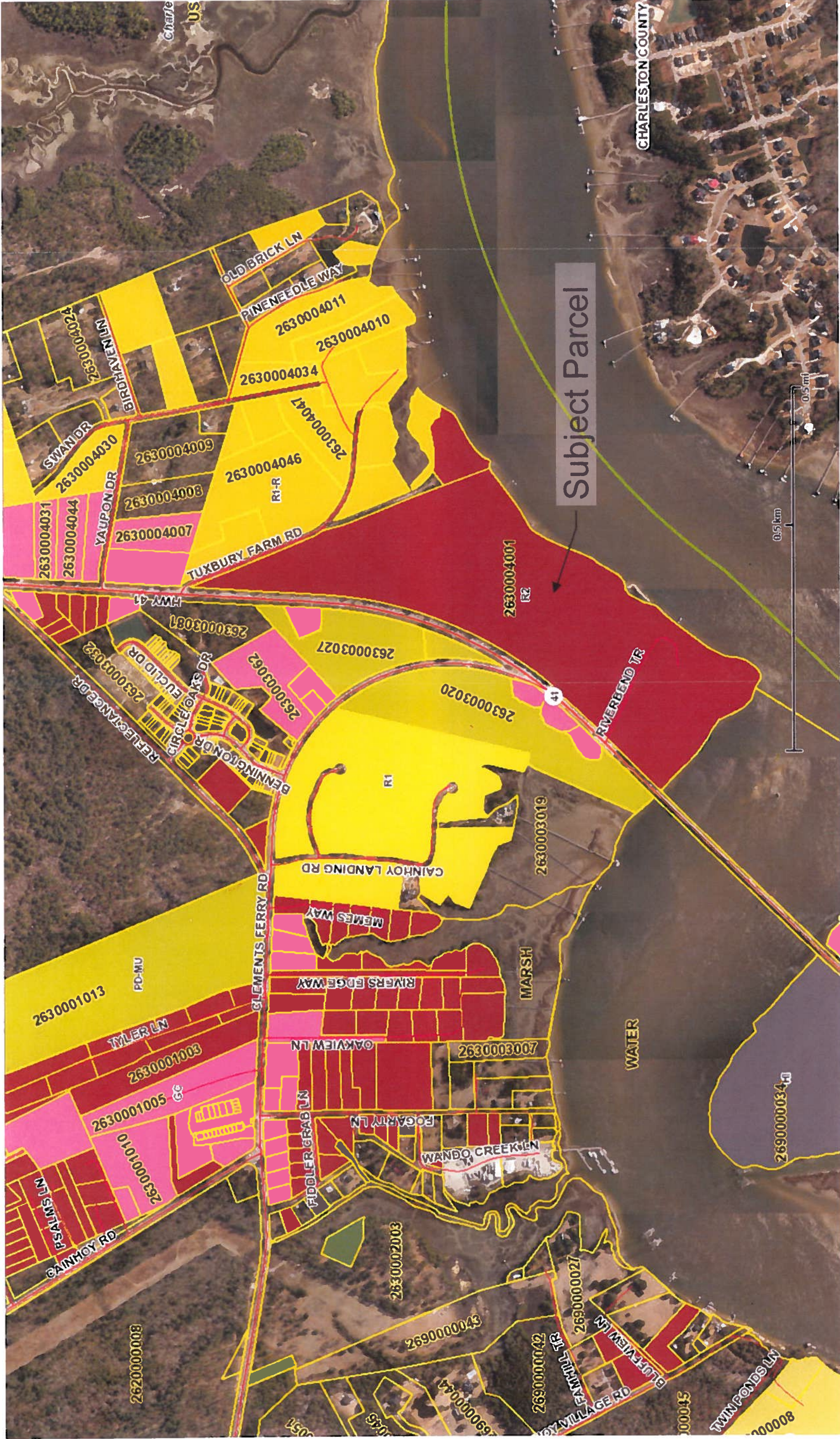
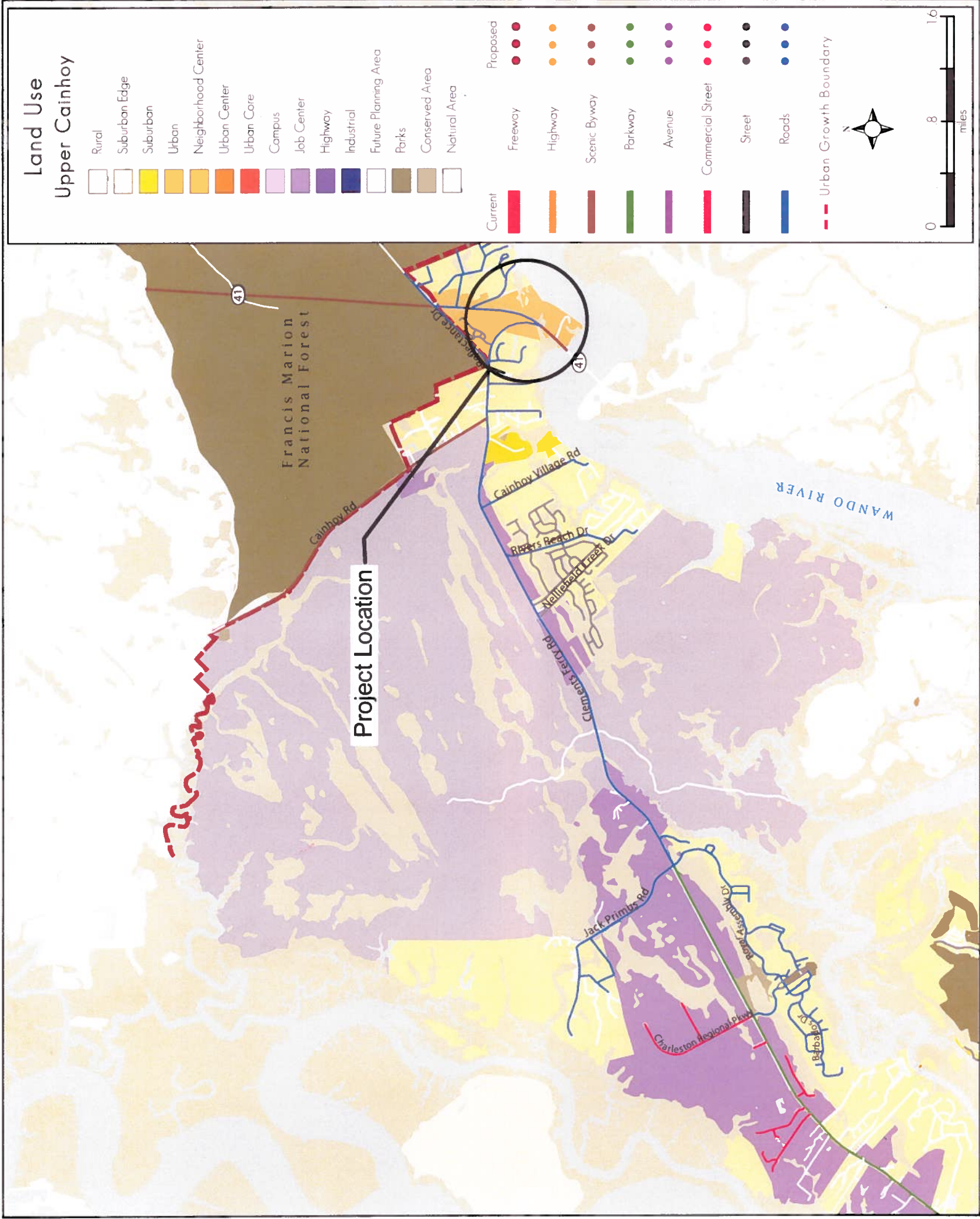


EXHIBIT 1: EXISTING ZONING OF SUBJECT & ADJACENT PARCELS

(BERKELEY COUNTY)

August 25, 2014



**EXHIBIT 2: LAND USE - UPPER CAINHROY**  
**FROM: CENTURY V: 2010 COMPREHENSIVE PLAN UPDATE**

August 25, 2014



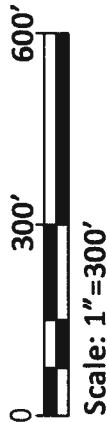
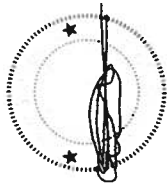
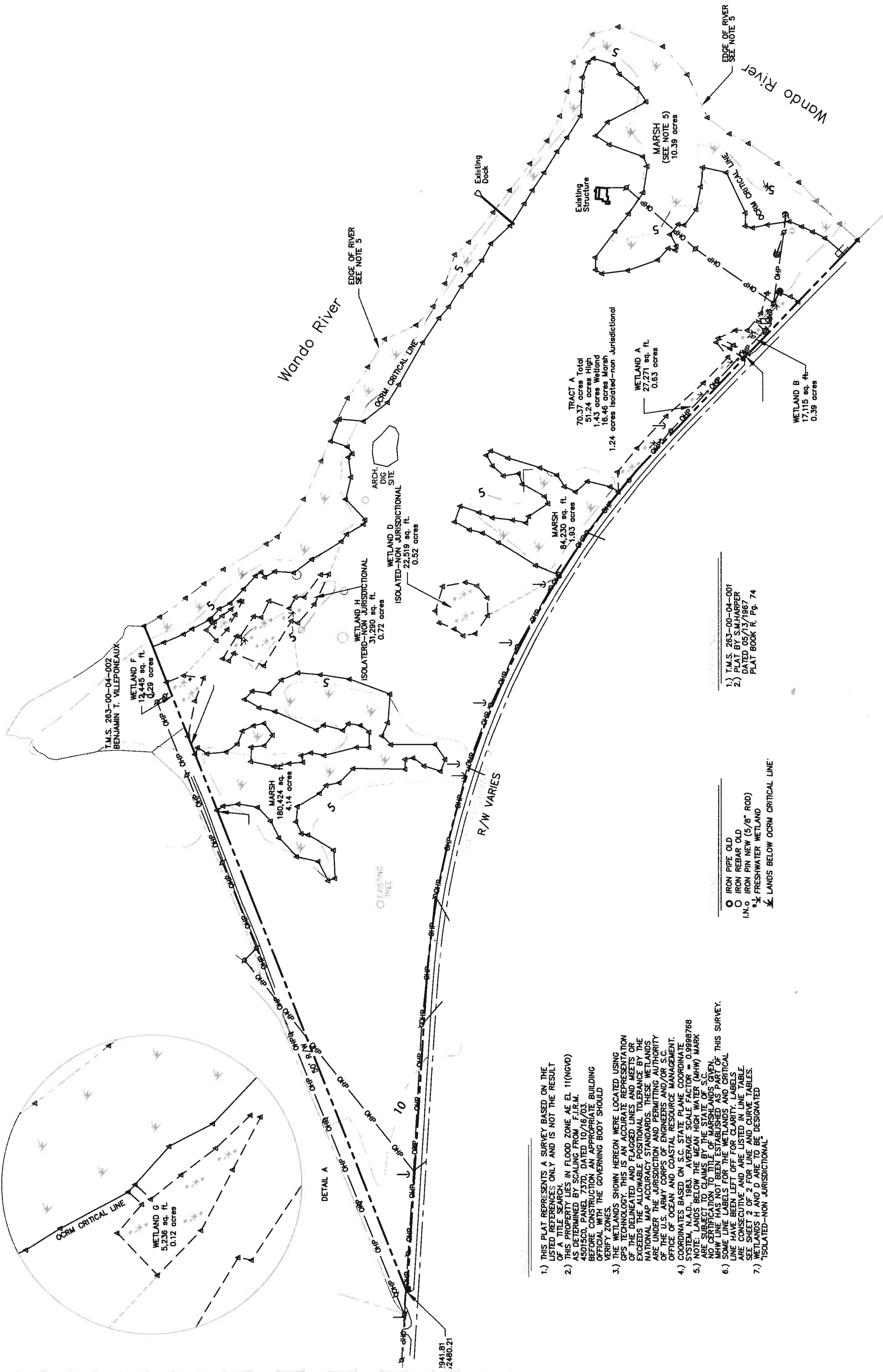


EXHIBIT 4: SITE ANALYSIS & TOPOGRAPHY

August 25, 2014



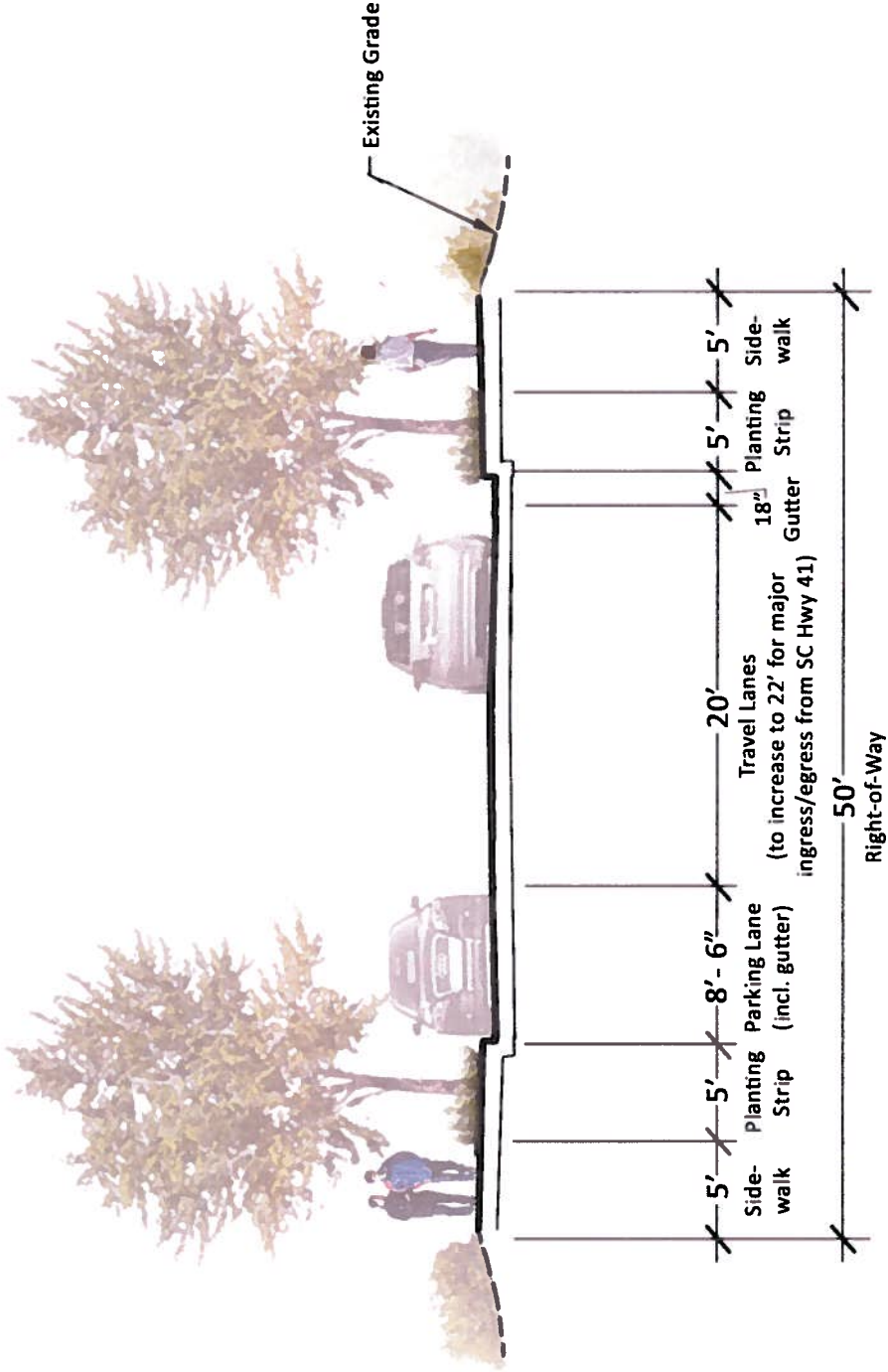
- 1.) THIS PLAT REPRESENTS A SURVEY BASED ON THE LISTED REFERENCES ONLY AND IS NOT THE RESULT OF A TITLE SEARCH.
- 2.) THIS PROPERTY LIES IN FLOOD ZONE AE EL 11(NGVD) AS DETERMINED BY SCALING FROM F.J.R.M. 4501500, PANEL 7370, DATED 10/16/03. BEFORE CONSTRUCTION AN APPROPRIATE BUILDING OFFICIAL WITH THE GOVERNING BODY SHOULD VERIFY ZONES.
- 3.) THE WETLANDS SHOWN HEREON WERE LOCATED USING GPS TECHNOLOGY. THIS IS AN ACCURATE REPRESENTATION OF THE DELINEATED AND FLAGGED LINES AND MEETS OR EXCEEDS THE ALLOWABLE POSITIONAL TOLERANCE BY THE NATIONAL MAP ACCURACY STANDARDS. THESE WETLANDS ARE UNDER THE JURISDICTION AND PERMITTING AUTHORITY OF THE U.S. ARMY CORPS OF ENGINEERS AND/OR S.C. OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT.
- 4.) COORDINATES BASED ON S.C. STATE PLANE COORDINATE SYSTEM, N.A.D., 1983. AVERAGE SCALE FACTOR = 0.9998768
- 5.) NOTE: LANDS BELOW THE MEAN HIGH WATER (MHW) MARK ARE SUBJECT TO CLAIMS BY THE STATE OF S.C. NOW CERTIFICATES FOR TITLE ESTABLISHED AND GIVEN.
- 6.) SOME LINE LABELS FOR THE WETLANDS AND CRITICAL LINE HAVE BEEN LEFT OFF FOR CLARITY. LABELS ARE CONSECUTIVE AND ARE LISTED IN LINE TABLE. SEE SHEET 2 OF 2 FOR LINE AND CURVE TABLES.
- 7.) WETLANDS H AND D ARE TO BE DESIGNATED "ISOLATED-NON JURISDICTIONAL"



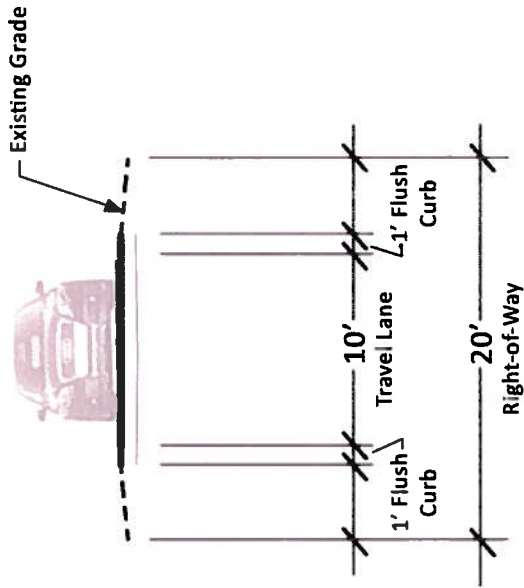




Two way traffic; Parking on one side in designated parking areas only.  
Vertical Curb.  
Sidewalk and Plantings both sides.\*



Internal alleys; One way traffic.  
Flush Curb.\*



\* Typical sections conceptual only. Actual roadway designs to vary based on site conditions and need. All public ROWs to feature street lights as per City of Charleston ordinances current at the time of design.

EXHIBIT 7: TYPICAL STREET CROSS SECTION

1" = 10'-0"

August 25, 2014



WANDO VILLAGE PUD  
OWNER: PASTIME AMUSEMENT, INC.  
DEVELOPER: THE BEACH COMPANY







**EXHIBIT 9: STORM DRAINAGE PATTERNS**

August 25, 2014

**Legend**

Hydrant

Distribution Main

Hydrant Lead

Transmission Main

Unknown

Dead End Manhole

Drop Manhole

FM Receiving Dead End Manhole

FM Receiving Standard Manhole

Split Manhole

Standard Manhole

Unknown

Force Main

Unknown

FM Receiving Drop Manhole

FM Receiving Standard Manhole

Split Manhole

Unknown

Gravity Main

Tunnel

Unknown

Approximate Location of Existing Overhead Power Lines

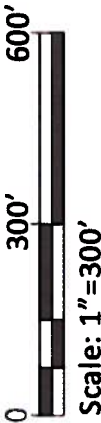
Approximate Parcel Boundary

Approximate Sewer Pump Location (to connect to existing Force Main along Clements Ferry Road)

Approximate Water Meter Location (to connect to existing Transmission Main)

**EXHIBIT 10: CONCEPTUAL UTILITY PLAN**

August 25, 2014



## **APPENDICES**

## APPENDIX 1

Traffic Impact Analysis

## *Wando Village*

Draft Report – July 2014

### THE BEACH COMPANY

REAL ESTATE DEVELOPMENT • SALES • LEASING • MANAGEMENT

*Building Traditions Since 1945*

Traffic Impact Analysis

Wando Village

D&F Job No. 31573.00.

Prepared for:

Charles S. Way, Jr.

Chairman

The Beach Company, Inc.

211 King St #300

Charleston, SC 29401

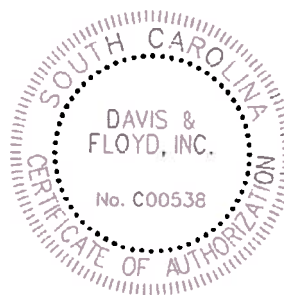
Prepared by:

Davis & Floyd, Inc.

3229 West Montague Avenue

North Charleston, SC 29419

[843] 554 8602



**DAVIS  
&  
FLOYD**

## INTRODUCTION

As requested, Davis & Floyd, Inc. has conducted an analysis to assess the traffic impacts associated with the new development referred to as "Wando Village" in Charleston, South Carolina. The proposed Wando Village development will be located on the north side of the Wando River Bridge on SC Highway 41 and is expected to include the construction of 35 single family homes, 565 apartment units, 15,000 sf of restaurant space, and 10,000 sf of retail space. Access to the Wando Village will be provided by three access drives along SC 41 north of the future Clements Ferry Rd/SC 41 intersection and one access drive along SC 41 south of the future Clements Ferry Rd/SC 41 intersection. The development will be constructed in phases and is anticipated to be complete and fully operational in a 7 year period, depending on market conditions.

## EXISTING CONDITIONS

### Project Study Area:

The study area for this project includes the following three intersections located along/near SC Highway 41.

- SC 41 / Clements Ferry Road
- SC 41 / Halfway Creek Road
- Clements Ferry Road / Reflectance Drive

### Existing Intersection Geometry:

Detailed field reviews of the area were conducted in April, 2014. These reviews included site visits to document the existing roadway geometry and intersection traffic control devices as well as conducting traffic turning movement counts for the morning (6:30 AM – 8:30 AM) and PM (4:00–6:00) peak hours at the intersections. A summary of the traffic count data obtained at these locations is provided in **Figure 1**. The existing roadway conditions are summarized as follows:

- SC 41 / Clements Ferry Road:

The intersection of SC 41 / Clements Ferry Road is a three-way un-signalized intersection with SC 41 making up the northbound and southbound approaches and Clements Ferry Road making up the eastbound approach. The northbound and southbound approaches of SC 41 consist of a single approach lane from which all movements are made. The eastbound approach of Clements Ferry Road consists of a single approach lane from which all movements are made. The Clements Ferry Road approach is controlled by a yield sign and the SC Highway 41 approaches are free-flow. The posted speed limit along this segment of SC Highway 41 is 35 mph and Clements Ferry Road is posted at 35 mph.

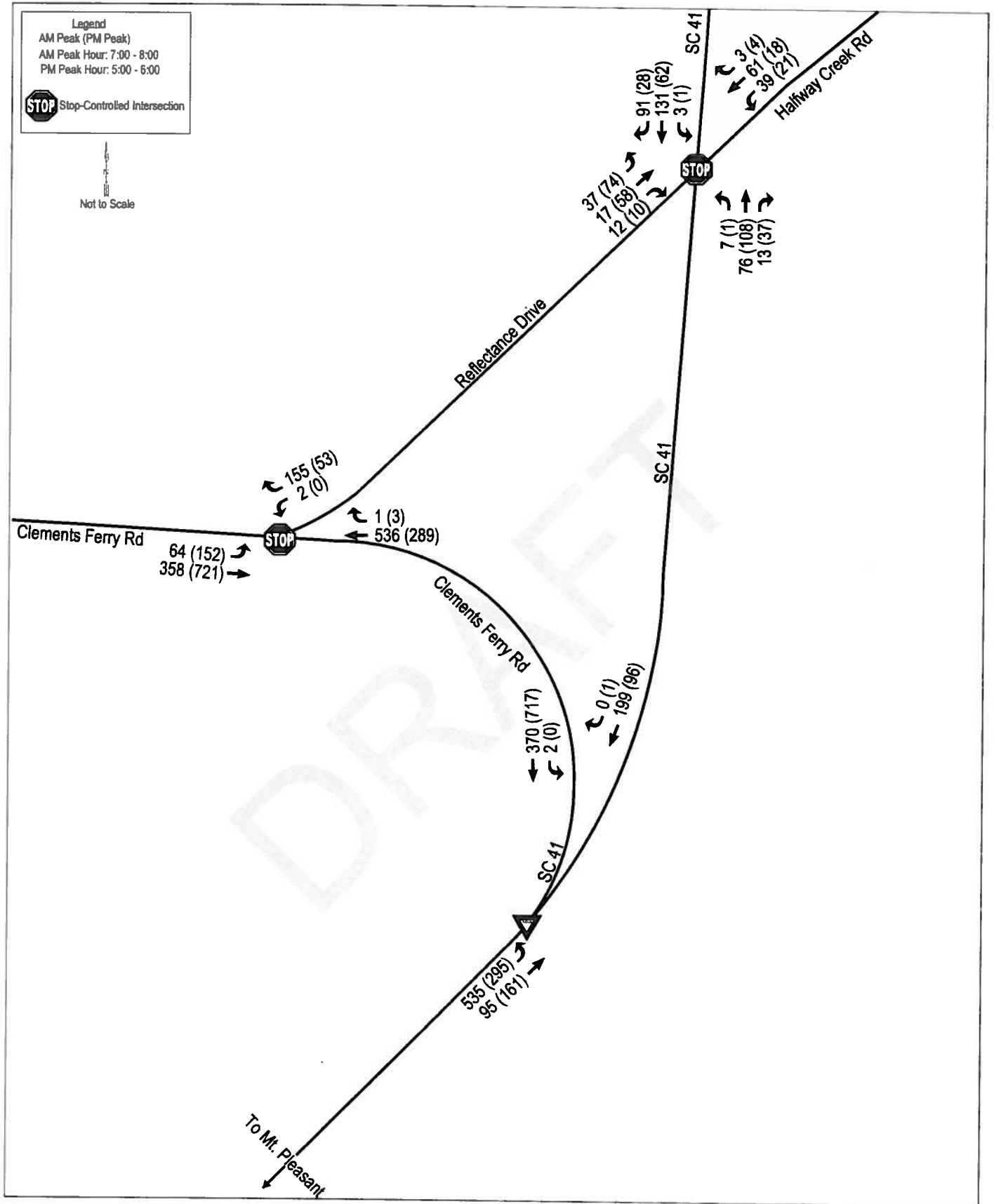


FIGURE 1  
 2014 Existing Peak Hour Traffic Volumes

SC 41 / Clements Ferry Rd / Reflectance Dr  
 Charleston, South Carolina

- SC 41 / Halfway Creek Road:

The intersection of SC 41 / Halfway Creek Road is a four-way un-signalized intersection with SC 41 making up the northbound and southbound approaches, Reflectance Drive making up the eastbound approach, and Halfway Creek Road making up the westbound approach. The northbound and southbound approaches of SC 41 consist of a single approach lane from which all movements are made. The eastbound approach of Reflectance Drive and westbound approach of Halfway Creek Road consist of single approach lanes from which all movements are made. The Reflectance Drive and Halfway Creek Road approaches are controlled by a stop sign and the SC Highway 41 approaches are free-flow. There are flashing beacons on each approach. The posted speed limit along SC Highway 41 Road is 45 mph, the posted speed limit on Halfway Creek Road is 55 mph and the speed limit on Reflectance Drive is 40 mph.

- Clements Ferry Road / Reflectance Drive

The intersection of Clements Ferry Road / Reflectance Drive is a three-way un-signalized intersection with Clements Ferry Road making up the eastbound and westbound approaches, and Reflectance Drive making up the southbound approach. The eastbound and westbound approaches of Clements Ferry Road consist of a single approach lanes from which all movements are made. The southbound approach of Reflectance Drive consists of a single approach lane from which all movements are made. The Reflectance Drive approach is controlled by a stop sign and the Clements Ferry Road approaches are free-flow. The posted speed limit along this segment of Clements Ferry Road is 35 mph and Reflectance Drive is 40 mph.

### **Existing Traffic Operations:**

The Level-of-Service (LOS) analysis is used to provide an evaluation of the overall operational conditions within the traffic stream. The LOS is defined in the Transportation Research Board's *Highway Capacity Manual* as a "qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, and convenience."<sup>1</sup> Six LOS categories have been defined and given letter designations from "A" to "F" with "A" representing the best operational conditions (minimal interruptions, good progression) and "F" representing the worst conditions (severe congestion, slow travel speeds). A summary of the delay associated with each LOS is summarized in Table 1. Acceptable intersection service levels are generally considered to be LOS "D" or better.

<sup>1</sup>. *Highway Capacity Manual*, p. 5-8, Transportation Research Board, National Research Council, Washington, D.C. 2000

**TABLE 1**  
**Intersection Delay and LOS**

Level of Service	Un-signalized Intersection Average Control Delay (seconds/vehicle)	Signalized Intersection Average Control Delay (seconds/vehicle)
A	0 - 10	≤10
B	>10 - 15	>10 - 20
C	>15 - 25	>20 - 35
D	>25 - 35	>35 - 55
E	>35 - 50	>55 - 80
F	>50	>80

In order to assess the overall performance of the existing intersections, a LOS analysis has been performed using SYNCHRO Studio 7 traffic modeling software. The results of this analysis are provided in Table 2.

**TABLE 2**  
**Existing Traffic Conditions**

Un-signalized Intersections	2014 – Existing Traffic Conditions					
	AM Peak Hour			PM Peak Hour		
	LOS	Delay	V/C	LOS	Delay	V/C
SC 41 / Clements Ferry Road <sup>1</sup>	C	19.2	0.46	C	17.5	0.29
SC 41 / Halfway Creek Road <sup>1</sup>	B	13.8	0.26	B	13.4	0.32
Clements Ferry Road / Reflectance Drive <sup>1</sup>	C	17.8	0.44	B	10.4	0.09

<sup>1</sup> LOS/ Delay/ V/C shown for the critical intersection approach

As indicated in Table 2 above, each of the study area intersections are operating at acceptable levels (LOS D or better) for both the AM and PM Peak traffic hours.

### 2021 “NO-BUILD” CONDITIONS

#### Area Growth Rate:

In order to assess the baseline traffic conditions expected for the 2021 project horizon year, historic traffic volumes were reviewed for both Clements Ferry Road and SC Highway 41 (SCDOT count stations #198 and #269) over the past 7 years. It was determined that the roadways have collectively experienced a negative annual growth. However, in order to provide a conservative analysis for future growth, a 1.0% annual growth rate was utilized to develop 2021 No Build traffic volumes. The historic traffic volumes and annual growth rates are provided in Table 3.

**TABLE 3**  
**Background Growth Rate**

Station	Road	Location	2005	2012	% annual Growth	Use
198	SC 41	Joe Rouse Rd to Berk. Co. Line	13,500	12,100	-1.55%	1%
269	Clements Ferry	SC 41 to Jack Primus	15,500	14,800	-0.66%	1%

**2021 "No-Build" Analysis:**

A level-of-service analysis has been conducted to assess the anticipated roadway conditions during the 2021 project horizon year. The traffic volumes assumed for this analysis include the conservative 1% annual growth in background traffic. It should be noted, that the SC 41 / Clements Ferry Road intersection geometry and location is currently being improved by the SCDOT. Preliminary SCDOT plans for the "S.C. Route 41 Bridge Replacement over Wando River" project provided by ICA Engineering show the new intersection north of its current location. The existing intersection will be converted to a "tee" type intersection where the Clements Ferry Road eastbound approach and SC 41 northbound approaches will be aligned as the "through" movements and the SC 41 southbound approach will be a side street approach. The northbound approach of SC 41 will include a right turn lane and a through lane. The eastbound approach of Clements Ferry Road will include a left turn lane and a through lane. The future intersection will be signalized. These improvements have been reflected in the analysis for the 2021 "No-Build" traffic conditions. The traffic volumes associated with the 2021 "No-Build" conditions are summarized in Figure 2. The results of this analysis are provided in Table 4.

**TABLE 4**  
**2021 "No-Build" Traffic Conditions**

Signalized Intersections	2021 – "No-Build" Traffic Conditions			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay	LOS	Delay
SC 41 / Clements Ferry Road <sup>1</sup>	B	10.4	A	7.8
SC 41 / Halfway Creek Road <sup>2</sup>	B	15.0	B	12.2
Clements Ferry Road / Reflectance Drive <sup>2</sup>	C	20.1	B	10.7

1. LOS / Delay shown for the overall intersection operation

2. LOS/ Delay shown for the critical intersection approach

As indicated above, each of the study area intersections is expected to operate at acceptable service levels (LOS D or better) for the 2021 "No-Build" traffic scenario.



**SC 41 / Clements Ferry Rd / Reflections Dr**  
**Charleston, South Carolina**

## PLANNED DEVELOPMENT

### Site Development and Access:

The proposed Wando Village is expected to include the construction of 35 single family homes, 565 apartment units, 15,000 sf of restaurant space, and 10,000 sf of retail space. Access to Wando Village will be provided by three access drives along SC 41 north of the future Clements Ferry Rd/SC 41 intersection and one drive along SC 41 south of the future Clements Ferry Rd/SC 41 intersection. A conceptual site plan for the development is provided in **Figure 3**.

### Trip Generation:

In order to estimate the traffic that could be expected for this development, the trip generation rates provided in the *Trip Generation Manual, 9<sup>th</sup> Edition*, published by the Institute of Transportation Engineers were applied to the proposed land uses in order to estimate the total site traffic. ITE Land Use Codes #210 (Single Family Detached Housing), #222 (High-Rise Apartment), #826 (Specialty Retail Center), and #932 (High-Turnover (Sit Down) Restaurant), were used to predict the site traffic for this multi-use facility. Due to the retail nature of the development, internal and pass-by capture was also considered in the trip generation estimates. Internal capture considers interaction between multiple uses in a development and pass-by traffic is attracted from the existing traffic volumes on adjacent roadways and reduces the new trip impacts of a retail project site. Internal and pass-by capture was estimated using information contained in ITE's Trip Generation Handbook, 2<sup>nd</sup> Edition (2004) reference. A summary of the expected traffic volumes are provided in Table 5.

**TABLE 5**  
**Site Trip Generation**

Land Use	ITE LUC	Scale	Weekday			Weekday AM Peak Hour			Weekday PM Peak Hour		
			Inbound	Outbound	Total	Inbound	Outbound	Total	Inbound	Outbound	Total
Single Family	210	35 lots	200	200	400	9	26	34	26	15	41
Apartment	222	565 units	1172	1172	2344	42	127	170	118	75	193
Restaurant	932	15,000 sf	954	954	1907	89	73	162	89	59	148
Retail	826	10,000 sf	233	233	465	79	86	165	20	25	45
Gross Trips:			2559	2559	5116	219	311	531	252	175	427
-Internal Capture Trips:									-6	-5	-11
-Pass-by Capture Trips:									-38	-25	-63
New, External Trips:			2559	2559	5116	219	311	531	209	145	353



### Trip Distribution:

The trip distribution pattern for the proposed Wando Village is based on the existing traffic patterns observed on the surrounding roadways. Based upon this information, the general distribution of new project trips was assumed to be:

- 45% to/from Clements Ferry
- 35% to/from Mt. Pleasant
- 20% to/from SC 41 relocated

### 2021 Build Traffic Conditions:

In order to assess the impacts of this development at full build-out in 2021, the 2021 "No-Build" traffic volumes were combined with the trip generation projections and the trip distribution patterns to develop the 2021 "Build" traffic volumes. The anticipated 2021 "Build" traffic volumes are shown in **Figure 4**. The study area intersections were then analyzed to determine the impacts of the additional site traffic. A summary of the analysis for the 2021 "Build" traffic conditions is provided in Table 6.

**TABLE 6**  
**2021 Build Traffic Conditions**

Intersections	2021 – "Build" Traffic Conditions			
	AM Peak Hour		PM Peak Hour	
	LOS	Delay	LOS	Delay
SC 41 / Clements Ferry Road <sup>1</sup>	B	18.7	B	11.6
SC 41 / Halfway Creek Road <sup>2</sup>	B	14.2	B	13.3
Clements Ferry Road / Reflectance Drive <sup>2</sup>	C	22.0	B	10.7
SC 41 / Site Access #1 <sup>2</sup>	B	11.2	B	10.7
SC 41 / Site Access #2 <sup>2</sup>	B	11.7	B	10.9
SC 41 / Site Access #3 <sup>2</sup>	B	12.9	B	12.0
SC 41 / Site Access #4 <sup>2</sup>	C	15.2	B	14.4

<sup>2</sup> LOS / Delay shown for the overall intersection operation

<sup>3</sup> LOS/ Delay shown for the critical intersection approach

As indicated in the level-of-service analysis, each of the study area and site access intersections is expected to operate at acceptable service levels (LOS D or better) for the 2021 "Build" traffic scenario.

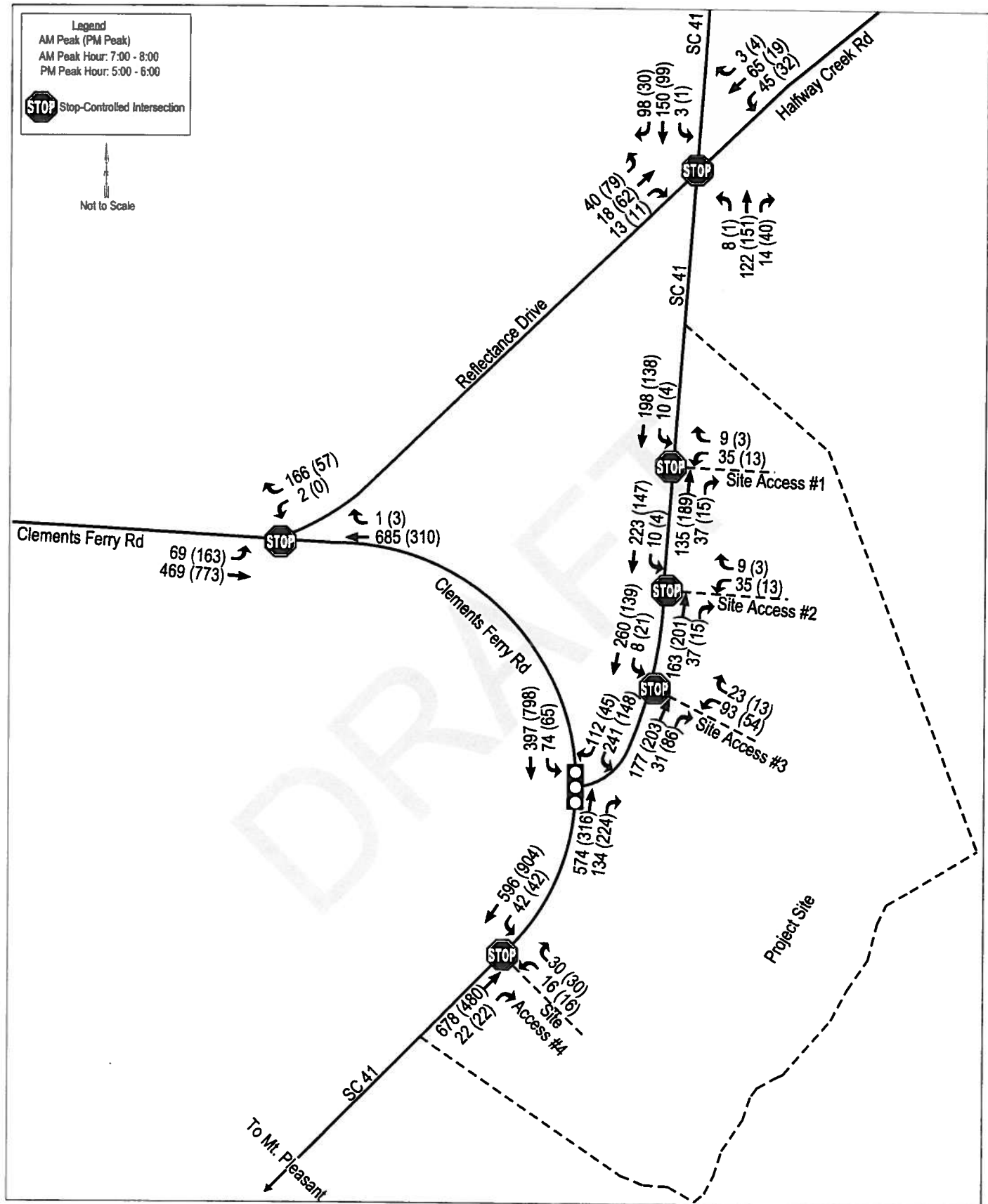


FIGURE 4  
 2021 "Build" Peak Hour Traffic Volumes

SC 41 / Clements Ferry Rd / Reflectance Dr  
 Charleston, South Carolina

## RECOMMENDATIONS / CONCLUSIONS

The traffic volumes associated with the construction of the Wando Village are not expected to have a significant impact on the surrounding roadway network. As indicated in this analysis, the 2021 "Build" traffic conditions at all of the study area and site access intersections are expected to operate at acceptable service levels (LOS D or better).

In order to address the impacts directly associated with the Wando Village project, the following intersection improvements are recommended:

- SC 41 / Site Access #1:
  - Construct a single turn lane from which all movements are made for the outbound approach and one lane for the inbound approach of site access #1.
- SC 41 / Site Access #2:
  - Construct new single turn lane from which all movements are made for the outbound approach and one lane for the inbound approach of site access #2.
- SC 41 / Site Access #3:
  - Construct a right turn lane (150' storage / 150' taper) and left turn lane for the outbound approach and one lane for the inbound approach of site access #3.
- SC 41 / Site Access #4:
  - Construct a right turn lane (150' storage / 150' taper) and left turn lane for the outbound approach and one lane for the inbound approach of site access #4.

The site access locations used in this analysis were based on a conceptual site plan provided by the client and preliminary roadway design plans provided by ICA Engineering. The site access locations will need to be coordinated with and approved by the SCDOT to ensure they complement the planned roadway improvements along SC 41 and Clements Ferry Road.

APPENDIX A  
Traffic Counts

# Short Counts

735 Maryland St.  
Columbia, SC 29201

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Default Comments

Change These in The Preferences Window

Select File/Preference in the Main Scree

Then Click the Comments Tab

File Name : SC 41 @ Halfway Creek Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	SC 41 Southbound				Halfway Creek Rd Westbound				SC 41 Northbound				Halfway Creek Rd Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	1	41	22	0	16	20	0	0	1	4	2	0	15	5	1	0	128
06:45	1	43	20	0	15	15	0	0	2	13	1	0	7	4	2	0	123
Total	2	84	42	0	31	35	0	0	3	17	3	0	22	9	3	0	251
07:00	1	26	15	0	13	17	1	0	1	17	2	0	7	4	5	0	109
07:15	1	35	22	0	14	11	1	0	0	19	4	0	9	2	1	0	119
07:30	1	35	31	0	6	20	1	0	6	18	5	0	8	6	4	0	141
07:45	0	35	23	0	6	13	0	0	0	22	2	0	13	5	2	0	121
Total	3	131	91	0	39	61	3	0	7	76	13	0	37	17	12	0	490
08:00	0	38	13	0	9	15	0	0	1	12	6	0	9	6	1	0	110
08:15	0	36	21	0	11	18	0	0	3	17	7	0	7	6	3	0	129
*** BREAK ***																	
Total	0	74	34	0	20	33	0	0	4	29	13	0	16	12	4	0	239
*** BREAK ***																	
16:00	0	21	9	0	6	8	1	0	1	20	9	0	20	8	0	0	103
16:15	0	10	6	0	2	4	2	0	1	31	9	0	13	16	1	0	95
16:30	2	21	2	0	7	3	0	0	1	28	8	0	17	15	2	0	106
16:45	1	18	8	0	1	3	1	0	3	25	7	0	14	9	0	0	90
Total	3	70	25	0	16	18	4	0	6	104	33	0	64	48	3	0	394
17:00	1	19	11	0	3	4	4	0	1	30	9	0	19	8	2	0	111
17:15	0	9	6	0	2	3	0	0	0	23	10	0	25	14	2	0	94
17:30	0	20	6	0	7	7	0	0	0	21	13	0	16	20	5	0	115
17:45	0	14	5	0	9	4	0	0	0	34	5	0	14	16	1	0	102
Total	1	62	28	0	21	18	4	0	1	108	37	0	74	58	10	0	422
Grand Total	9	421	220	0	127	165	11	0	21	334	99	0	213	144	32	0	1796
Apprch %	1.4	64.8	33.8	0	41.9	54.5	3.6	0	4.6	73.6	21.8	0	54.8	37	8.2	0	
Total %	0.5	23.4	12.2	0	7.1	9.2	0.6	0	1.2	18.6	5.5	0	11.9	8	1.8	0	
Unshifted	7	401	176	0	119	146	10	0	18	325	88	0	159	133	31	0	1613
% Unshifted	77.8	95.2	80	0	93.7	88.5	90.9	0	85.7	97.3	88.9	0	74.6	92.4	96.9	0	89.8
Bank 1	1	19	42	0	8	18	1	0	3	9	11	0	52	11	1	0	176
% Bank 1	11.1	4.5	19.1	0	6.3	10.9	9.1	0	14.3	2.7	11.1	0	24.4	7.6	3.1	0	9.8
Bank 2	1	1	2	0	0	1	0	0	0	0	0	0	2	0	0	0	7
% Bank 2	11.1	0.2	0.9	0	0	0.6	0	0	0	0	0	0	0.9	0	0	0	0.4

# Short Counts

735 Maryland St.  
Columbia, SC 29201

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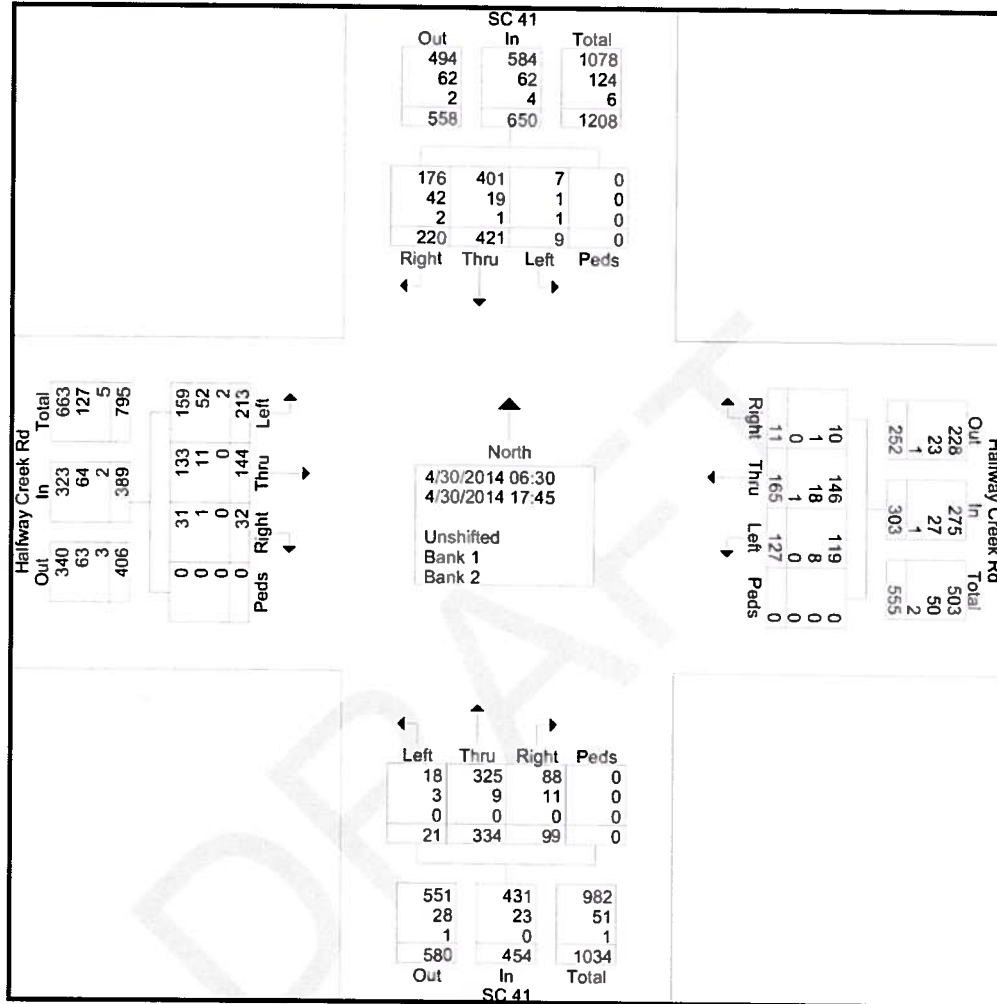
Then Click the Comments Tab

File Name : SC 41 @ Halfway Creek Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 2



# Short Counts

735 Maryland St.  
Columbia, SC 29201

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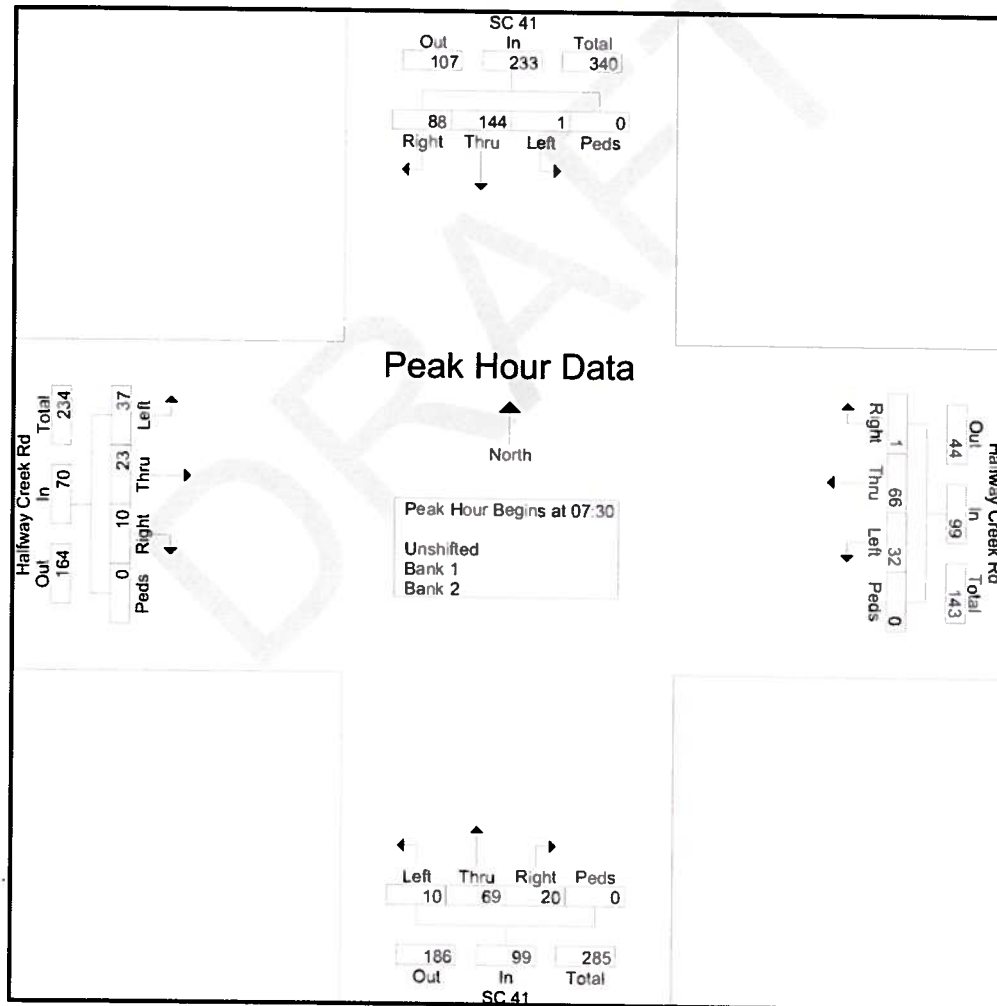
File Name : SC 41 @ Halfway Creek Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 3

	SC 41 Southbound					Halfway Creek Rd Westbound					SC 41 Northbound					Halfway Creek Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	1	35	31	0	67	6	20	1	0	27	6	18	5	0	29	8	6	4	0	18	141
07:45	0	35	23	0	58	6	13	0	0	19	0	22	2	0	24	13	5	2	0	20	121
08:00	0	38	13	0	51	9	15	0	0	24	1	12	6	0	19	9	6	1	0	16	110
08:15	0	36	21	0	57	11	18	0	0	29	3	17	7	0	27	7	6	3	0	16	129
Total Volume	1	144	88	0	233	32	66	1	0	99	10	69	20	0	99	37	23	10	0	70	501
% App. Total	0.4	61.8	37.8	0		32.3	66.7	1	0		10.1	69.7	20.2	0		52.9	32.9	14.3	0		
PHF	.250	.947	.710	.000	.869	.727	.825	.250	.000	.853	.417	.784	.714	.000	.853	.712	.958	.625	.000	.875	.888



# Short Counts

735 Maryland St.  
Columbia, SC 29201

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Default Comments

Change These in The Preferences Window

Select File/Preference in the Main Scree

Then Click the Comments Tab

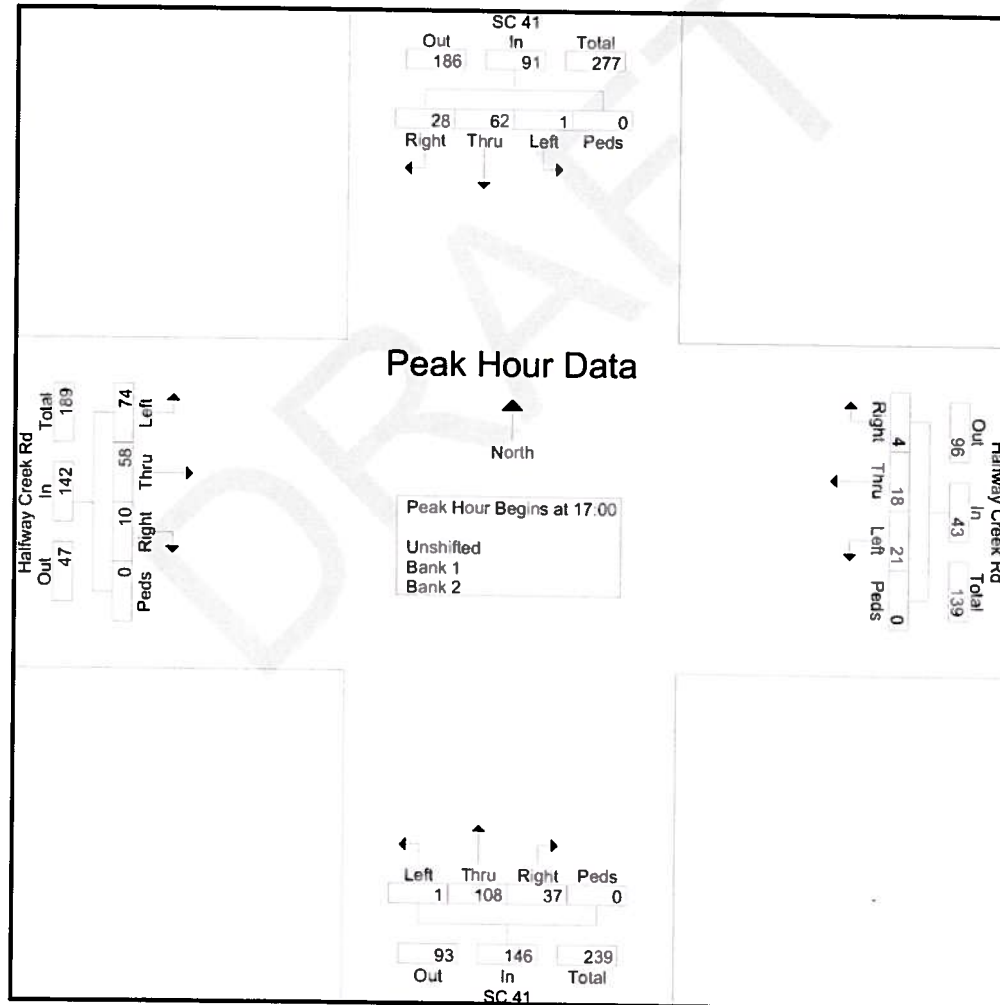
File Name : SC 41 @ Halfway Creek Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 4

	SC 41 Southbound					Halfway Creek Rd Westbound					SC 41 Northbound					Halfway Creek Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	1	19	11	0	31	3	4	4	0	11	1	30	9	0	40	19	8	2	0	29	111
17:15	0	9	6	0	15	2	3	0	0	5	0	23	10	0	33	25	14	2	0	41	94
17:30	0	20	6	0	26	7	7	0	0	14	0	21	13	0	34	16	20	5	0	41	115
17:45	0	14	5	0	19	9	4	0	0	13	0	34	5	0	39	14	16	1	0	31	102
Total Volume	1	62	28	0	91	21	18	4	0	43	1	108	37	0	146	74	58	10	0	142	422
% App. Total	1.1	68.1	30.8	0		48.8	41.9	9.3	0		0.7	74	25.3	0		52.1	40.8	7	0		
PHF	.250	.775	.636	.000	.734	.583	.643	.250	.000	.768	.250	.794	.712	.000	.913	.740	.725	.500	.000	.866	.917



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Page No : 1

	SC 41								SC 41				Clements Ferry Rd				
	Southbound				Westbound				Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
06:30	0	57	0	0	0	0	0	0	144	8	0	0	0	0	51	0	260
06:45	0	54	0	0	0	0	0	0	124	11	0	0	0	0	60	0	249
Total	0	111	0	0	0	0	0	0	268	19	0	0	0	0	111	0	509
07:00	0	48	0	0	0	0	0	0	150	21	0	0	0	0	92	0	311
07:15	0	51	0	0	0	0	0	0	137	27	0	0	0	0	83	0	298
07:30	0	54	0	0	0	0	0	0	122	21	0	0	1	0	103	0	301
07:45	0	46	0	0	0	0	0	0	126	26	0	0	1	0	92	0	291
Total	0	199	0	0	0	0	0	0	535	95	0	0	2	0	370	0	1201
08:00	0	45	0	0	0	0	0	0	114	20	0	0	0	0	91	0	270
08:15	0	54	0	0	0	0	0	0	120	22	0	0	0	0	79	0	275
*** BREAK ***																	
Total	0	99	0	0	0	0	0	0	234	42	0	0	0	0	170	0	545
*** BREAK ***																	
16:00	0	32	0	0	0	0	0	0	60	36	0	1	0	0	111	0	240
16:15	0	14	0	0	0	0	0	0	89	39	0	0	0	0	106	0	248
16:30	0	26	0	0	0	0	0	0	76	41	0	0	0	0	135	0	278
16:45	0	25	0	0	0	0	0	0	68	41	0	0	0	0	150	0	284
Total	0	97	0	0	0	0	0	0	293	157	0	1	0	0	502	0	1050
17:00	0	27	1	0	0	0	0	0	65	42	0	0	0	0	157	0	292
17:15	0	12	0	0	0	0	0	0	78	36	0	0	0	0	195	0	321
17:30	0	28	0	0	0	0	0	0	80	39	0	0	0	0	196	0	343
17:45	0	29	0	0	0	0	0	0	72	44	0	0	0	0	169	0	314
Total	0	96	1	0	0	0	0	0	295	161	0	0	0	0	717	0	1270
Grand Total	0	602	1	0	0	0	0	0	1625	474	0	1	2	0	1870	0	4575
Apprch %	0	99.8	0.2	0	0	0	0	0	77.4	22.6	0	0	0.1	0	99.9	0	
Total %	0	13.2	0	0	0	0	0	0	35.5	10.4	0	0	0	0	40.9	0	
Unshifted	0	568	1	0	0	0	0	0	1606	450	0	1	2	0	1836	0	4464
% Unshifted	0	94.4	100	0	0	0	0	0	98.8	94.9	0	100	100	0	98.2	0	97.6
Bank 1	0	33	0	0	0	0	0	0	18	24	0	0	0	0	30	0	105
% Bank 1	0	5.5	0	0	0	0	0	0	1.1	5.1	0	0	0	0	1.6	0	2.3
Bank 2	0	1	0	0	0	0	0	0	1	0	0	0	0	0	4	0	6
% Bank 2	0	0.2	0	0	0	0	0	0	0.1	0	0	0	0	0	0.2	0	0.1

# Short Counts

735 Maryland St.  
Columbia, SC 29201

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File Name : SC 41 @ Clements Ferry Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 2

SC 41

Out	In	Total
452	569	1021
24	33	57
0	1	1
476	603	1079

Right	Thru	Left	Peds
1	568	0	0
0	33	0	0
0	1	0	0
1	602	0	0

Clements Ferry Rd

Out	In	Total
1607	1838	3445
18	30	48
1	4	5
1626	1872	3498

North

4/30/2014 06:30  
4/30/2014 17:45

Unshifted  
Bank 1  
Bank 2

Right	Thru	Left	Peds
0	1836	0	2
0	30	0	0
0	4	0	0
0	1870	0	2

Left	Thru	Right	Peds
1606	450	0	1
18	24	0	0
1	0	0	0
1625	474	0	1

Out	In	Total
2404	2057	4461
63	42	105
5	1	6
2472	2100	4572

SC 41

# Short Counts

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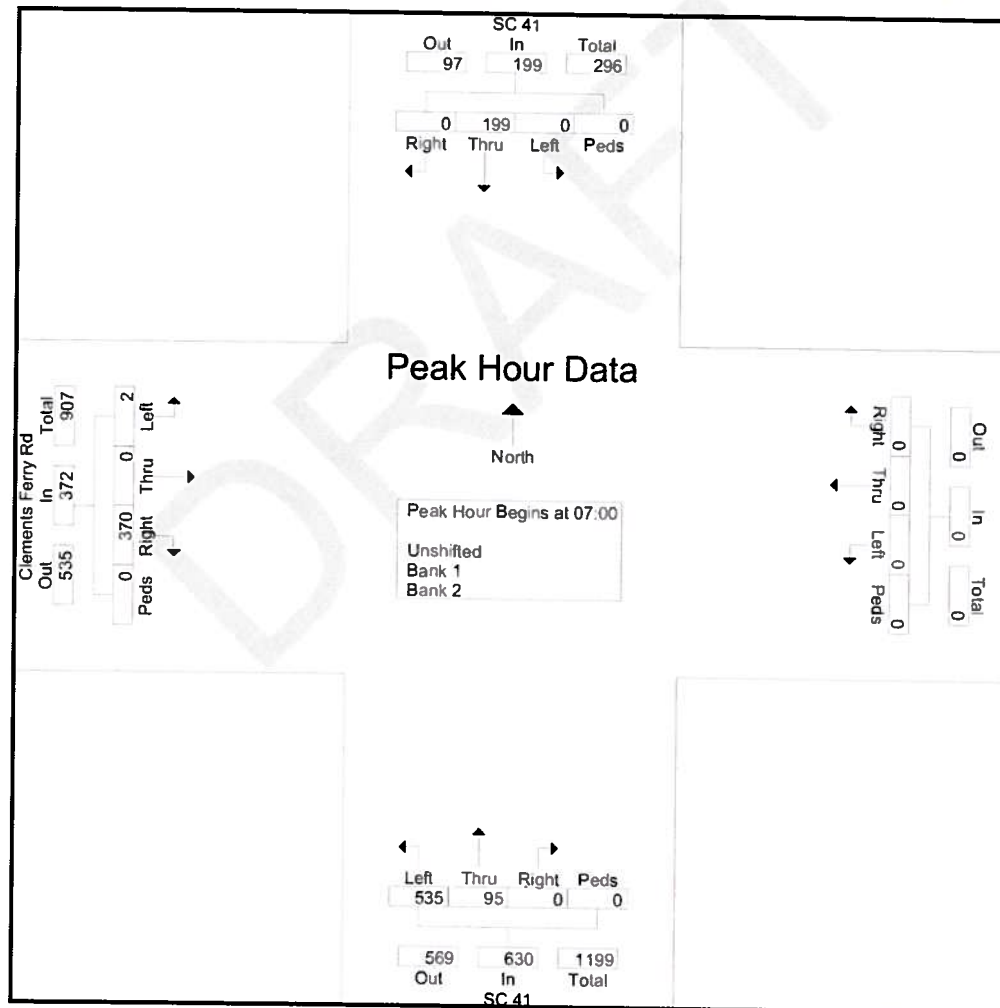
File Name : SC 41 @ Clements Ferry Rd

Site Code : 00043014

Start Date : 4/30/2014

Page No : 3

	SC 41 Southbound					Westbound					SC 41 Northbound					Clements Ferry Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	48	0	0	48	0	0	0	0	0	150	21	0	0	171	0	0	92	0	92	311
07:15	0	51	0	0	51	0	0	0	0	0	137	27	0	0	164	0	0	83	0	83	298
07:30	0	54	0	0	54	0	0	0	0	0	122	21	0	0	143	1	0	103	0	104	301
07:45	0	46	0	0	46	0	0	0	0	0	126	26	0	0	152	1	0	92	0	93	291
Total Volume	0	199	0	0	199	0	0	0	0	0	535	95	0	0	630	2	0	370	0	372	1201
% App. Total	0	100	0	0		0	0	0	0		84.9	15.1	0	0		0.5	0	99.5	0		
PHF	.000	.921	.000	.000	.921	.000	.000	.000	.000	.000	.892	.880	.000	.000	.921	.500	.000	.898	.000	.894	.965



# Short Counts

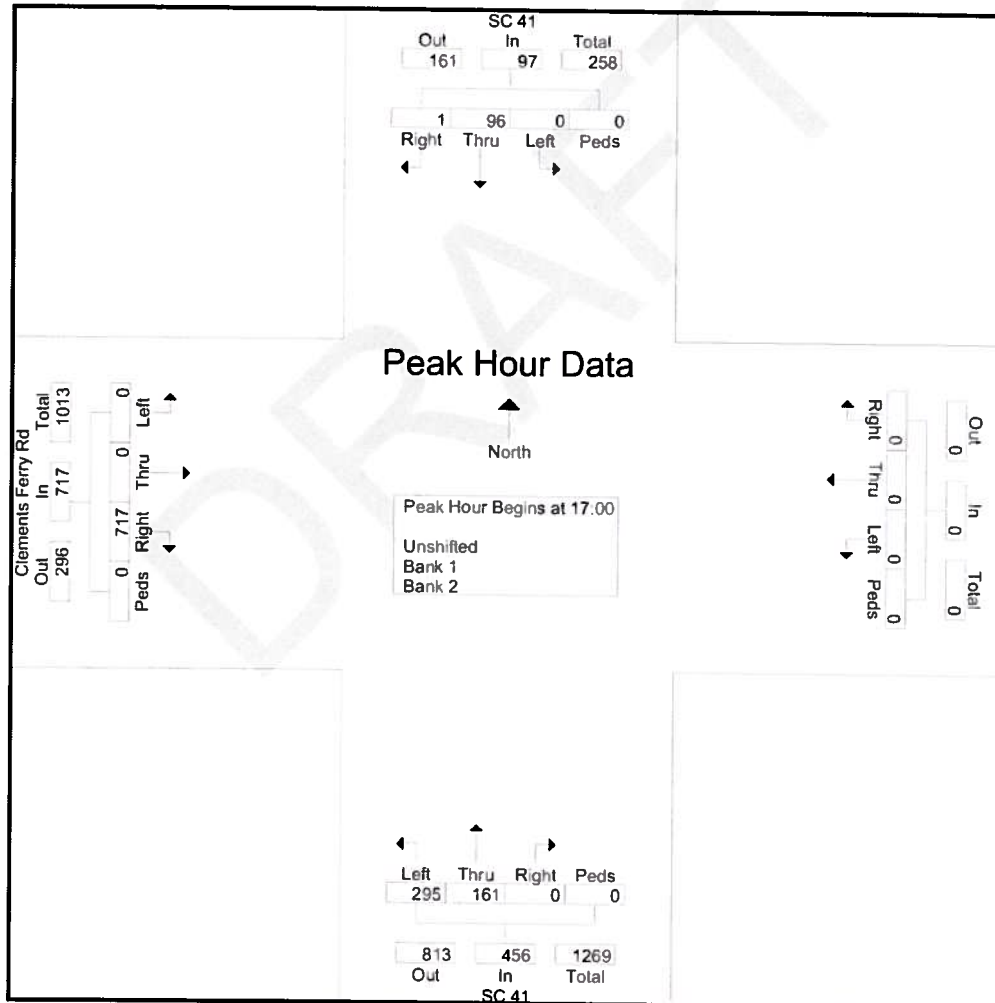
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Default Comments  
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File Name : SC 41 @ Clements Ferry Rd  
Site Code : 00043014  
Start Date : 4/30/2014  
Page No : 4

	SC 41 Southbound					Westbound					SC 41 Northbound					Clements Ferry Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	27	1	0	28	0	0	0	0	0	65	42	0	0	107	0	0	157	0	157	292
17:15	0	12	0	0	12	0	0	0	0	0	78	36	0	0	114	0	0	195	0	195	321
17:30	0	28	0	0	28	0	0	0	0	0	80	39	0	0	119	0	0	196	0	196	343
17:45	0	29	0	0	29	0	0	0	0	0	72	44	0	0	116	0	0	169	0	169	314
Total Volume	0	96	1	0	97	0	0	0	0	0	295	161	0	0	456	0	0	717	0	717	1270
% App. Total	0	99	1	0		0	0	0	0		64.7	35.3	0	0		0	0	100	0		
PHF	.000	.828	.250	.000	.836	.000	.000	.000	.000	.000	.922	.915	.000	.000	.958	.000	.000	.915	.000	.915	.926



# Short Counts

735 Maryland St.  
Columbia, SC 29201

Default Comments  
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*You Can Count On Us* File Name : Clements Ferry @ Reflectance Dr  
Site Code : 00043014  
Start Date : 4/30/2014  
Page No : 1

## Groups Printed- Unshifted - Bank 1 - Bank 2

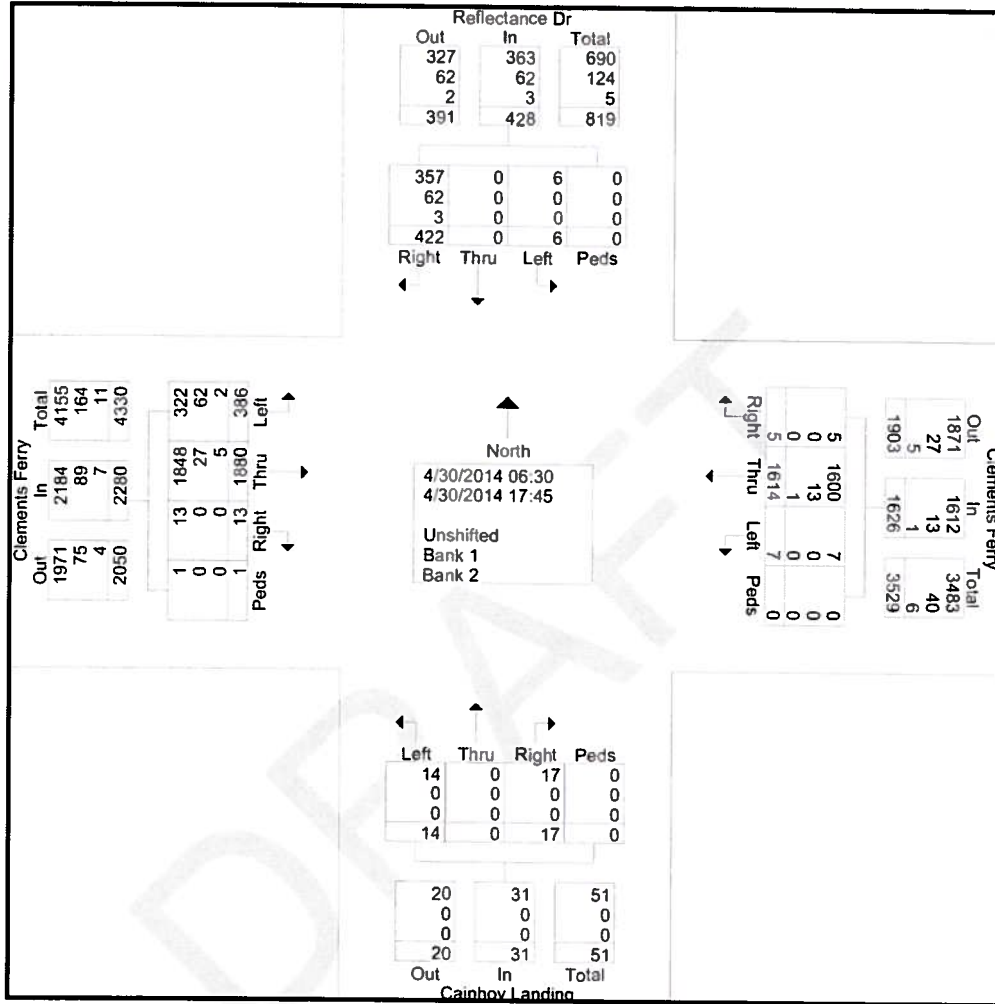
Start Time	Reflectance Dr Southbound				Clements Ferry Westbound				Cainhoy Landing Northbound				Clements Ferry Eastbound				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	0	0	45	0	0	138	0	0	0	0	0	0	20	42	0	1	246
06:45	2	0	40	0	0	133	1	0	0	0	3	0	10	62	0	0	251
Total	2	0	85	0	0	271	1	0	0	0	3	0	30	104	0	1	497
07:00	0	0	28	0	0	148	0	0	2	0	1	0	12	90	0	0	281
07:15	1	0	34	0	1	140	0	0	1	0	1	0	16	80	0	0	274
07:30	0	0	53	0	1	127	0	0	1	0	3	0	15	97	0	0	297
07:45	1	0	40	0	0	121	1	0	1	0	1	0	21	91	0	0	277
Total	2	0	155	0	2	536	1	0	5	0	6	0	64	358	0	0	1129
08:00	0	0	34	0	0	120	0	0	0	0	1	0	15	89	0	0	259
08:15	0	0	46	0	0	117	0	0	2	0	2	0	8	81	0	0	256
*** BREAK ***																	
Total	0	0	80	0	0	237	0	0	2	0	3	0	23	170	0	0	515
*** BREAK ***																	
16:00	1	0	18	0	0	63	0	0	1	0	0	0	27	120	2	0	232
16:15	1	0	11	0	1	77	0	0	0	0	0	0	35	116	1	0	242
16:30	0	0	6	0	0	72	0	0	1	0	0	0	28	138	1	0	246
16:45	0	0	14	0	0	69	0	0	0	0	2	0	27	153	1	0	266
Total	2	0	49	0	1	281	0	0	2	0	2	0	117	527	5	0	986
17:00	0	0	17	0	1	65	0	0	1	0	1	0	41	178	4	0	308
17:15	0	0	11	0	0	77	1	0	1	0	0	0	45	188	1	0	324
17:30	0	0	14	0	3	70	2	0	1	0	1	0	38	185	2	0	316
17:45	0	0	11	0	0	77	0	0	2	0	1	0	28	170	1	0	290
Total	0	0	53	0	4	289	3	0	5	0	3	0	152	721	8	0	1238
Grand Total	6	0	422	0	7	1614	5	0	14	0	17	0	386	1880	13	1	4365
Apprch %	1.4	0	98.6	0	0.4	99.3	0.3	0	45.2	0	54.8	0	16.9	82.5	0.6	0	
Total %	0.1	0	9.7	0	0.2	37	0.1	0	0.3	0	0.4	0	8.8	43.1	0.3	0	
Unshifted	6	0	357	0	7	1600	5	0	14	0	17	0	322	1848	13	1	4190
% Unshifted	100	0	84.6	0	100	99.1	100	0	100	0	100	0	83.4	98.3	100	100	96
Bank 1	0	0	62	0	0	13	0	0	0	0	0	0	62	27	0	0	164
% Bank 1	0	0	14.7	0	0	0.8	0	0	0	0	0	0	16.1	1.4	0	0	3.8
Bank 2	0	0	3	0	0	1	0	0	0	0	0	0	2	5	0	0	11
% Bank 2	0	0	0.7	0	0	0.1	0	0	0	0	0	0	0.5	0.3	0	0	0.3

# Short Counts

735 Maryland St.  
Columbia, SC 29201

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*You Can Count On Us* File Name : Clements Ferry @ Reflectance Dr  
Site Code : 00043014  
Start Date : 4/30/2014  
Page No : 2



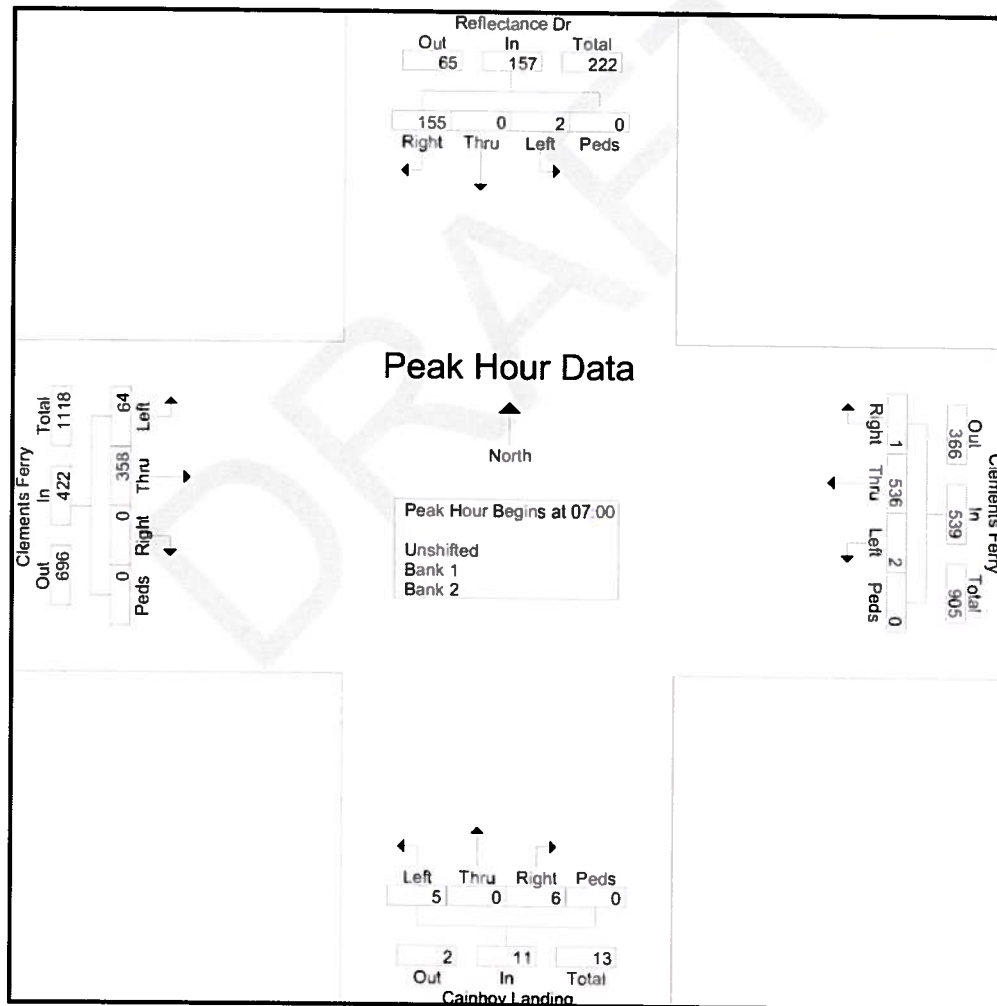
# Short Counts

735 Maryland St.  
Columbia, SC 29201

Default Comments  
Change These in The Preferences Window  
Select File/Preference in the Main Scree  
Then Click the Comments Tab

*You Can Count On It* File Name : Clements Ferry @ Reflectance Dr  
Site Code : 00043014  
Start Date : 4/30/2014  
Page No : 3

	Reflectance Dr Southbound					Clements Ferry Westbound					Cainhoy Landing Northbound					Clements Ferry Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 08:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	0	0	28	0	28	0	148	0	0	148	2	0	1	0	3	12	90	0	0	102	281
07:15	1	0	34	0	35	1	140	0	0	141	1	0	1	0	2	16	80	0	0	96	274
07:30	0	0	53	0	53	1	127	0	0	128	1	0	3	0	4	15	97	0	0	112	297
07:45	1	0	40	0	41	0	121	1	0	122	1	0	1	0	2	21	91	0	0	112	277
Total Volume	2	0	155	0	157	2	536	1	0	539	5	0	6	0	11	64	358	0	0	422	1129
% App. Total	1.3	0	98.7	0		0.4	99.4	0.2	0		45.5	0	54.5	0		15.2	84.8	0	0		
PHF	.500	.000	.731	.000	.741	.500	.905	.250	.000	.910	.625	.000	.500	.000	.688	.762	.923	.000	.000	.942	.950



# Short Counts

735 Maryland St.  
Columbia, SC 29201

Default Comments

Change These in The Preferences Window

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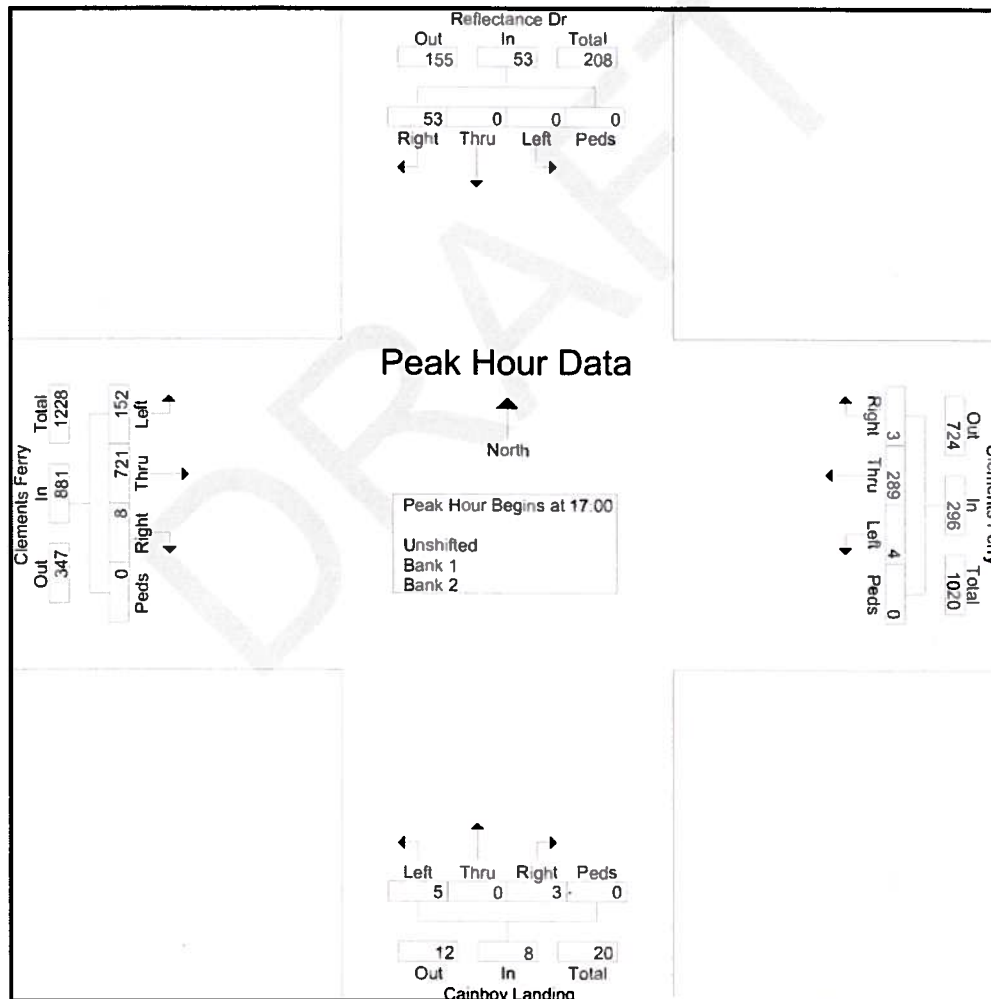
File Name : Clements Ferry @ Reflectance Dr

Site Code : 00043014

Start Date : 4/30/2014

Page No : 4










	Reflectance Dr Southbound					Clements Ferry Westbound					Cainhoy Landing Northbound					Clements Ferry Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	0	17	0	17	1	65	0	0	66	1	0	1	0	2	41	178	4	0	223	308
17:15	0	0	11	0	11	0	77	1	0	78	1	0	0	0	1	45	188	1	0	234	324
17:30	0	0	14	0	14	3	70	2	0	75	1	0	1	0	2	38	185	2	0	225	316
17:45	0	0	11	0	11	0	77	0	0	77	2	0	1	0	3	28	170	1	0	199	290
Total Volume	0	0	53	0	53	4	289	3	0	296	5	0	3	0	8	152	721	8	0	881	1238
% App. Total	0	0	100	0		1.4	97.6	1	0		62.5	0	37.5	0		17.3	81.8	0.9	0		
PHF	.000	.000	.779	.000	.779	.333	.938	.375	.000	.949	.625	.000	.750	.000	.667	.844	.959	.500	.000	.941	.955



**APPENDIX B**  
**Existing Conditions**

















Wando Village Traffic Impact Analysis  
Clements Ferry Road / Reflectance Dr

2014 AM Peak Hour  
Existing Conditions

						
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	64	358	536	1	2	155
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.76	0.92	0.91	0.90	0.50	0.73
Hourly flow rate (vph)	84	389	589	1	4	212
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	590				1147	590
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	590				1147	590
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				98	58
cM capacity (veh/h)	985				201	508
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	473	590	216			
Volume Left	84	0	4			
Volume Right	0	1	212			
cSH	985	1700	494			
Volume to Capacity	0.09	0.35	0.44			
Queue Length 95th (ft)	7	0	55			
Control Delay (s)	2.4	0.0	17.8			
Lane LOS	A		C			
Approach Delay (s)	2.4	0.0	17.8			
Approach LOS			C			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization			70.4%	ICU Level of Service		C
Analysis Period (min)			15			













Wando Village Traffic Impact Analysis  
SC 41 / Reflectance Dr

2014 AM Peak Hour  
Existing Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	3	131	91	7	76	13	37	17	12	39	61	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.94	0.73	0.29	0.86	0.65	0.71	0.71	0.60	0.70	0.76	0.75
Hourly flow rate (vph)	4	139	125	24	88	20	52	24	20	56	80	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	108			264			400	419	98	388	366	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	108			264			400	419	98	388	366	202
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			89	95	98	89	85	100
cM capacity (veh/h)	1482			1300			487	514	958	530	550	839
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	268	133	96	140								
Volume Left	4	24	52	56								
Volume Right	125	20	20	4								
cSH	1482	1300	551	547								
Volume to Capacity	0.00	0.02	0.17	0.26								
Queue Length 95th (ft)	0	1	16	25								
Control Delay (s)	0.1	1.6	12.9	13.8								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	1.6	12.9	13.8								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			26.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Wando Village Traffic Impact Analysis  
SC 41 / Clements Ferry Road

2014 AM Peak Hour  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	199	0	535	95	0	370
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.90	0.89	0.88	0.90	0.90
Hourly flow rate (vph)	216	0	601	108	0	411
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		8				
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1012	601			601	
vC1, stage 1 conf vol	601					
vC2, stage 2 conf vol	411					
vCu, unblocked vol	1012	601			601	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	100			100	
cM capacity (veh/h)	473	500			976	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	216	601	108	0	411	
Volume Left	216	0	0	0	0	
Volume Right	0	0	108	0	0	
cSH	467	1700	1700	1700	1700	
Volume to Capacity	0.46	0.35	0.06	0.00	0.24	
Queue Length 95th (ft)	60	0	0	0	0	
Control Delay (s)	19.2	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	19.2	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay		3.1				
Intersection Capacity Utilization		45.8%		ICU Level of Service		A
Analysis Period (min)		15				

Wando Village Traffic Impact Analysis  
Clements Ferry Rd / Reflectance Dr

2014 PM Peak Hour  
Existing Conditions



















Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Volume (veh/h)	152	721	289	3	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.96	0.94	0.38	0.50	0.78
Hourly flow rate (vph)	181	751	307	8	0	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	315				1424	311
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	315				1424	311
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				100	91
cM capacity (veh/h)	1245				128	729
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	932	315	68			
Volume Left	181	0	0			
Volume Right	0	8	68			
cSH	1245	1700	729			
Volume to Capacity	0.15	0.19	0.09			
Queue Length 95th (ft)	13	0	8			
Control Delay (s)	3.4	0.0	10.4			
Lane LOS	A		B			
Approach Delay (s)	3.4	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			75.1%		ICU Level of Service	D
Analysis Period (min)			15			

Wando Village Traffic Impact Analysis  
SC 41 / Reflectance Dr













2014 PM Peak Hour

Existing Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	1	108	37	1	62	28	74	58	10	21	18	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.79	0.71	0.25	0.78	0.64	0.74	0.73	0.50	0.58	0.64	0.25
Hourly flow rate (vph)	4	137	52	4	79	44	100	79	20	36	28	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	123			189			310	306	101	340	302	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	123			189			310	306	101	340	302	163
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			83	87	98	93	95	98
cM capacity (veh/h)	1464			1385			606	604	954	538	607	882
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	193	127	199	80								
Volume Left	4	4	100	36								
Volume Right	52	44	20	16								
cSH	1464	1385	628	610								
Volume to Capacity	0.00	0.00	0.32	0.13								
Queue Length 95th (ft)	0	0	34	11								
Control Delay (s)	0.2	0.3	13.4	11.8								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.2	0.3	13.4	11.8								
Approach LOS			B	B								
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			25.2%			ICU Level of Service				A		
Analysis Period (min)			15									

Wando Village Traffic Impact Analysis  
Clements Ferry Rd / SC 41

2014 PM Peak Hour  
Existing Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	96	0	295	161	0	717
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.83	0.90	0.92	0.91	0.90	0.91
Hourly flow rate (vph)	116	0	321	177	0	788
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		8				
Median type			TWLT			None
Median storage veh			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1109	321			321	
vC1, stage 1 conf vol	321					
vC2, stage 2 conf vol	788					
vCu, unblocked vol	1109	321			321	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	100			100	
cM capacity (veh/h)	413	720			1239	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	116	321	177	0	788	
Volume Left	116	0	0	0	0	
Volume Right	0	0	177	0	0	
cSH	403	1700	1700	1700	1700	
Volume to Capacity	0.29	0.19	0.10	0.00	0.46	
Queue Length 95th (ft)	29	0	0	0	0	
Control Delay (s)	17.5	0.0	0.0	0.0	0.0	
Lane LOS	C					
Approach Delay (s)	17.5	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay		1.4				
Intersection Capacity Utilization		49.7%		ICU Level of Service		A
Analysis Period (min)		15				

**APPENDIX C**  
**2021 “No-Build” Traffic Conditions**










Wando Village Traffic Impact Analysis  
6: SC 41 & Clements Ferry Rd

2021 "No-Build" AM Peak Hour  
No-Build Conditions

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	213	0	574	102	0	397
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00		1.00	1.00		1.00
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		1863	1583		1863
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		1863	1583		1863
Peak-hour factor, PHF	0.92	0.90	0.89	0.88	0.90	0.90
Adj. Flow (vph)	232	0	645	116	0	441
RTOR Reduction (vph)	0	0	0	54	0	0
Lane Group Flow (vph)	232	0	645	62	0	441
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			6		5	2
Permitted Phases	4	4		6	2	
Actuated Green, G (s)	11.9		27.7	27.7		27.7
Effective Green, g (s)	11.9		27.7	27.7		27.7
Actuated g/C Ratio	0.23		0.54	0.54		0.54
Clearance Time (s)	6.0		6.0	6.0		6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	408		1000	849		1000
v/s Ratio Prot			c0.35			0.24
v/s Ratio Perm	c0.13			0.04		
v/c Ratio	0.57		0.65	0.07		0.44
Uniform Delay, d1	17.6		8.5	5.8		7.3
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.8		1.4	0.0		0.3
Delay (s)	19.4		9.9	5.8		7.6
Level of Service	B		A	A		A
Approach Delay (s)	19.4		9.3			7.6
Approach LOS	B		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			10.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			51.6		Sum of lost time (s)	18.0
Intersection Capacity Utilization			52.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

















Wando Village Traffic Impact Analysis  
2: Clements Ferry Rd & Reflectance Dr

2021 "No-Build" AM Peak Hour  
No-Build Conditions

						
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	69	384	575	1	2	166
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.76	0.92	0.91	0.90	0.50	0.73
Hourly flow rate (vph)	91	417	632	1	4	227
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	633				1231	632
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	633				1231	632
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				98	53
cM capacity (veh/h)	950				177	480
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	508	633	231			
Volume Left	91	0	4			
Volume Right	0	1	227			
cSH	950	1700	466			
Volume to Capacity	0.10	0.37	0.50			
Queue Length 95th (ft)	8	0	68			
Control Delay (s)	2.6	0.0	20.1			
Lane LOS	A		C			
Approach Delay (s)	2.6	0.0	20.1			
Approach LOS			C			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization		74.7%		ICU Level of Service		D
Analysis Period (min)			15			

Wando Village Traffic Impact Analysis  
4: SC 41 & Reflectance Dr

2021 "No-Build" PM Peak Hour  
No-Build Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	1	116	40	1	66	30	79	62	11	23	19	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	129	44	1	73	33	88	69	12	26	21	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	107			173			261	268	90	292	262	151
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	107			173			261	268	90	292	262	151
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			87	89	99	96	97	100
cM capacity (veh/h)	1484			1403			671	637	968	597	642	895
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	174	108	169	51								
Volume Left	1	1	88	26								
Volume Right	44	33	12	4								
cSH	1484	1403	671	634								
Volume to Capacity	0.00	0.00	0.25	0.08								
Queue Length 95th (ft)	0	0	25	7								
Control Delay (s)	0.1	0.1	12.2	11.2								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.1	0.1	12.2	11.2								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			26.4%		ICU Level of Service					A		
Analysis Period (min)			15									










Wando Village Traffic Impact Analysis  
6: Clements Ferry/Clements Ferry Rd & SC 41

2021 "No-Build" PM Peak Hour  
No-Build Conditions

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	103	0	316	173	0	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0		6.0
Lane Util. Factor	1.00		1.00	1.00		1.00
Frt	1.00		1.00	0.85		1.00
Flt Protected	0.95		1.00	1.00		1.00
Satd. Flow (prot)	1770		1863	1583		1863
Flt Permitted	0.95		1.00	1.00		1.00
Satd. Flow (perm)	1770		1863	1583		1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	114	0	351	192	0	854
RTOR Reduction (vph)	0	0	0	66	0	0
Lane Group Flow (vph)	114	0	351	126	0	854
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			6		5	2
Permitted Phases	4	4		6	2	
Actuated Green, G (s)	7.4		37.2	37.2		37.2
Effective Green, g (s)	7.4		37.2	37.2		37.2
Actuated g/C Ratio	0.13		0.66	0.66		0.66
Clearance Time (s)	6.0		6.0	6.0		6.0
Vehicle Extension (s)	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)	231		1224	1040		1224
v/s Ratio Prot			0.19			c0.46
v/s Ratio Perm	c0.06			0.08		
v/c Ratio	0.49		0.29	0.12		0.70
Uniform Delay, d1	22.9		4.1	3.6		6.1
Progression Factor	1.00		1.00	1.00		1.00
Incremental Delay, d2	1.7		0.1	0.1		1.8
Delay (s)	24.5		4.2	3.7		7.9
Level of Service	C		A	A		A
Approach Delay (s)	24.5		4.0			7.9
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			56.6		Sum of lost time (s)	18.0
Intersection Capacity Utilization			56.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

















Wando Village Traffic Impact Analysis  
2: Clements Ferry Rd & Reflectance Dr

2021 "No-Build" PM Peak Hour  
No-Build Conditions

						
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	163	773	310	3	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	181	859	344	3	0	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	348				1567	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348				1567	346
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	85				100	91
cM capacity (veh/h)	1211				104	697
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	1040	348	63			
Volume Left	181	0	0			
Volume Right	0	3	63			
cSH	1211	1700	697			
Volume to Capacity	0.15	0.20	0.09			
Queue Length 95th (ft)	13	0	7			
Control Delay (s)	3.6	0.0	10.7			
Lane LOS	A		B			
Approach Delay (s)	3.6	0.0	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization		79.7%		ICU Level of Service		D
Analysis Period (min)		15				

Wando Village Traffic Impact Analysis  
4: SC 41 & Reflectance Dr

















2021 "No-Build" AM Peak Hour  
No-Build Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	8	81	14	3	140	98	40	18	13	42	65	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.94	0.73	0.29	0.86	0.65	0.71	0.71	0.60	0.70	0.76	0.75
Hourly flow rate (vph)	11	86	19	10	163	151	56	25	22	60	86	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	314			105			423	386	238	410	451	96
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314			105			423	386	238	410	451	96
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			88	95	97	88	83	100
cM capacity (veh/h)	1247			1486			462	540	801	512	496	961
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	116	324	103	150								
Volume Left	11	10	56	60								
Volume Right	19	151	22	4								
cSH	1247	1486	528	509								
Volume to Capacity	0.01	0.01	0.20	0.29								
Queue Length 95th (ft)	1	1	18	30								
Control Delay (s)	0.8	0.3	13.5	15.0								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.8	0.3	13.5	15.0								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			27.3%			ICU Level of Service				A		
Analysis Period (min)			15									

**APPENDIX D**  
**2021 “Build” Traffic Conditions**

Wando Village Traffic Impact Analysis  
4: SC 41 & Reflectance Dr

2021 "Build" AM Peak Hour  
Build Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	12	130	23	3	170	98	40	18	16	54	65	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	13	144	26	3	189	109	44	20	18	60	72	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	298			170			473	447	243	462	488	157
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298			170			473	447	243	462	488	157
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			90	96	98	87	85	100
cM capacity (veh/h)	1263			1407			437	500	795	479	474	888
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	183	301	82	136								
Volume Left	13	3	44	60								
Volume Right	26	109	18	3								
cSH	1263	1407	501	482								
Volume to Capacity	0.01	0.00	0.16	0.28								
Queue Length 95th (ft)	1	0	15	29								
Control Delay (s)	0.7	0.1	13.6	15.4								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.7	0.1	13.6	15.4								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			30.2%			ICU Level of Service				A		
Analysis Period (min)			15									










Wando Village Traffic Impact Analysis  
6: Clements Ferry/Clements Ferry Rd & SC 41

2021 "Build" AM Peak Hour  
Build Conditions

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	263	92	604	147	61	436
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.14	1.00
Satd. Flow (perm)	1770	1583	1863	1583	269	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	292	102	671	163	68	484
RTOR Reduction (vph)	0	80	0	93	0	0
Lane Group Flow (vph)	292	22	671	70	68	484
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			6		5	2
Permitted Phases	4	4		6	2	
Actuated Green, G (s)	13.9	13.9	27.3	27.3	37.7	37.7
Effective Green, g (s)	13.9	13.9	27.3	27.3	37.7	37.7
Actuated g/C Ratio	0.22	0.22	0.43	0.43	0.59	0.59
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	386	345	799	679	263	1104
v/s Ratio Prot			c0.36		0.02	c0.26
v/s Ratio Perm	c0.17	0.01		0.04	0.14	
v/c Ratio	0.76	0.06	0.84	0.10	0.26	0.44
Uniform Delay, d1	23.3	19.7	16.2	10.8	9.5	7.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.2	0.1	7.8	0.1	0.5	0.3
Delay (s)	31.5	19.8	24.0	10.9	10.0	7.4
Level of Service	C	B	C	B	B	A
Approach Delay (s)	28.5		21.4			7.7
Approach LOS	C		C			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			18.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			63.6		Sum of lost time (s)	18.0
Intersection Capacity Utilization			64.7%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						













Wando Village Traffic Impact Analysis  
2: Clements Ferry Rd & Reflectance Dr

2021 "Build" AM Peak Hour  
Build Conditions

						
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	69	482	713	3	2	166
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	77	536	792	3	2	184
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	796				1483	794
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	796				1483	794
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				98	52
cM capacity (veh/h)	826				125	388
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	612	796	187			
Volume Left	77	0	2			
Volume Right	0	3	184			
cSH	826	1700	379			
Volume to Capacity	0.09	0.47	0.49			
Queue Length 95th (ft)	8	0	66			
Control Delay (s)	2.4	0.0	23.4			
Lane LOS	A		C			
Approach Delay (s)	2.4	0.0	23.4			
Approach LOS			C			
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization		87.3%		ICU Level of Service		E
Analysis Period (min)		15				











Wando Village Traffic Impact Analysis  
18: Clements Ferry &

2021 "Build" PM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	30	541	22	42	908
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	33	601	24	47	1009
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage veh			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1703	601			626	
vC1, stage 1 conf vol	601					
vC2, stage 2 conf vol	1102					
vCu, unblocked vol	1703	601			626	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	93			95	
cM capacity (veh/h)	270	500			956	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	18	33	601	24	47	1009
Volume Left	18	0	0	0	47	0
Volume Right	0	33	0	24	0	0
cSH	270	500	1700	1700	956	1700
Volume to Capacity	0.07	0.07	0.35	0.01	0.05	0.59
Queue Length 95th (ft)	5	5	0	0	4	0
Control Delay (s)	19.3	12.7	0.0	0.0	9.0	0.0
Lane LOS	C	B			A	
Approach Delay (s)	15.0		0.0		0.4	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			57.8%		ICU Level of Service	B
Analysis Period (min)			15			










Wando Village Traffic Impact Analysis  
14: Site Access #3 & SC 41

2021 "Build" PM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	54	13	212	86	21	143
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	60	14	236	96	23	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	489	283			331	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489	283			331	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			98	
cM capacity (veh/h)	528	756			1228	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	60	14	331	182		
Volume Left	60	0	0	23		
Volume Right	0	14	96	0		
cSH	528	756	1700	1228		
Volume to Capacity	0.11	0.02	0.19	0.02		
Queue Length 95th (ft)	10	1	0	1		
Control Delay (s)	12.7	9.9	0.0	1.2		
Lane LOS	B	A		A		
Approach Delay (s)	12.1		0.0	1.2		
Approach LOS	B					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			35.3%		ICU Level of Service	A
Analysis Period (min)			15			










Wando Village Traffic Impact Analysis  
11: Site Access #2 & SC 41

2021 "Build" PM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	3	210	15	4	151
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	3	233	17	4	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418	242			250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418	242			250	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	589	797			1316	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	18	250	172			
Volume Left	14	0	4			
Volume Right	3	17	0			
cSH	620	1700	1316			
Volume to Capacity	0.03	0.15	0.00			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	11.0	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	11.0	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		0.5				
Intersection Capacity Utilization		22.0%		ICU Level of Service		A
Analysis Period (min)		15				

Wando Village Traffic Impact Analysis  
9: Site Access #1 & SC 41

















2021 "Build" PM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	3	198	15	4	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	3	220	17	4	158
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	395	228			237	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	395	228			237	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	608	811			1330	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	18	237	162			
Volume Left	14	0	4			
Volume Right	3	17	0			
cSH	638	1700	1330			
Volume to Capacity	0.03	0.14	0.00			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	10.8	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	10.8	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		21.3%		ICU Level of Service		A
Analysis Period (min)		15				

Wando Village Traffic Impact Analysis  
4: SC 41 & Reflectance Dr

2021 "Build" PM Peak Hour

Build Conditions

												
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	1	138	44	1	96	30	80	62	13	33	19	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	153	49	1	107	33	89	69	14	37	21	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	140			202			321	330	123	354	322	178
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	140			202			321	330	123	354	322	178
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			85	88	98	93	96	99
cM capacity (veh/h)	1443			1370			611	588	928	538	594	865
Direction, Lane #	NB 1	SB 1	NE 1	SW 1								
Volume Total	203	141	172	62								
Volume Left	1	1	89	37								
Volume Right	49	33	14	4								
cSH	1443	1370	619	572								
Volume to Capacity	0.00	0.00	0.28	0.11								
Queue Length 95th (ft)	0	0	28	9								
Control Delay (s)	0.0	0.1	13.0	12.1								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.0	0.1	13.0	12.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay			5.2									
Intersection Capacity Utilization			27.1%		ICU Level of Service					A		
Analysis Period (min)			15									










Wando Village Traffic Impact Analysis  
6: Clements Ferry/Clements Ferry Rd & SC 41

2021 "Build" PM Peak Hour  
Build Conditions

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	152	45	337	234	64	798
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	1863
Flt Permitted	0.95	1.00	1.00	1.00	0.40	1.00
Satd. Flow (perm)	1770	1583	1863	1583	750	1863
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	169	50	374	260	71	887
RTOR Reduction (vph)	0	42	0	141	0	0
Lane Group Flow (vph)	169	8	374	119	71	887
Turn Type	Perm	Perm	NA	Perm	pm+pt	NA
Protected Phases			6		5	2
Permitted Phases	4	4		6	2	
Actuated Green, G (s)	8.6	8.6	25.6	25.6	35.5	35.5
Effective Green, g (s)	8.6	8.6	25.6	25.6	35.5	35.5
Actuated g/C Ratio	0.15	0.15	0.46	0.46	0.63	0.63
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	271	242	850	722	545	1178
v/s Ratio Prot			0.20		0.01	c0.48
v/s Ratio Perm	c0.10	0.00		0.07	0.07	
v/c Ratio	0.62	0.03	0.44	0.16	0.13	0.75
Uniform Delay, d1	22.2	20.2	10.4	9.0	4.6	7.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	0.1	0.4	0.1	0.1	2.8
Delay (s)	26.7	20.3	10.7	9.1	4.7	10.0
Level of Service	C	C	B	A	A	A
Approach Delay (s)	25.2		10.1			9.6
Approach LOS	C		B			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			11.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			56.1		Sum of lost time (s)	18.0
Intersection Capacity Utilization			60.4%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						













Wando Village Traffic Impact Analysis  
2: Clements Ferry Rd & Reflectance Dr

2021 "Build" PM Peak Hour  
Build Conditions

						
Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (veh/h)	163	866	374	3	0	59
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	181	962	416	3	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	419				1742	417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419				1742	417
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	84				100	90
cM capacity (veh/h)	1140				80	636
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	1143	419	66			
Volume Left	181	0	0			
Volume Right	0	3	66			
cSH	1140	1700	636			
Volume to Capacity	0.16	0.25	0.10			
Queue Length 95th (ft)	14	0	9			
Control Delay (s)	4.1	0.0	11.3			
Lane LOS	A		B			
Approach Delay (s)	4.1	0.0	11.3			
Approach LOS			B			
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization		88.1%		ICU Level of Service		E
Analysis Period (min)		15				











Wando Village Traffic Impact Analysis  
18: Clements Ferry &

2021 "Build" AM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	36	30	721	22	42	657
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	40	33	801	24	47	730
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLT		TWLT	
Median storage (veh)			2		2	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1624	801			826	
vC1, stage 1 conf vol	801					
vC2, stage 2 conf vol	823					
vCu, unblocked vol	1624	801			826	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	91			94	
cM capacity (veh/h)	310	384			805	
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	40	33	801	24	47	730
Volume Left	40	0	0	0	47	0
Volume Right	0	33	0	24	0	0
cSH	310	384	1700	1700	805	1700
Volume to Capacity	0.13	0.09	0.47	0.01	0.06	0.43
Queue Length 95th (ft)	11	7	0	0	5	0
Control Delay (s)	18.3	15.3	0.0	0.0	9.7	0.0
Lane LOS	C	C			A	
Approach Delay (s)	16.9		0.0		0.6	
Approach LOS	C					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			47.9%		ICU Level of Service	A
Analysis Period (min)			15			










Wando Village Traffic Impact Analysis  
14: Site Access #3 & SC 41

2021 "Build" AM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	73	23	177	31	8	282
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	81	26	197	34	9	313
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	545	214			231	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	545	214			231	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	97			99	
cM capacity (veh/h)	496	826			1337	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	81	26	231	322		
Volume Left	81	0	0	9		
Volume Right	0	26	34	0		
cSH	496	826	1700	1337		
Volume to Capacity	0.16	0.03	0.14	0.01		
Queue Length 95th (ft)	14	2	0	1		
Control Delay (s)	13.7	9.5	0.0	0.3		
Lane LOS	B	A		A		
Approach Delay (s)	12.7		0.0	0.3		
Approach LOS	B					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			32.0%	ICU Level of Service		A
Analysis Period (min)			15			










Wando Village Traffic Impact Analysis  
11: Site Access #2 & SC 41

2021 "Build" AM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	9	163	37	10	255
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	10	181	41	11	283
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	507	202			222	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	202			222	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			99	
cM capacity (veh/h)	521	839			1347	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	49	222	294			
Volume Left	39	0	11			
Volume Right	10	41	0			
cSH	565	1700	1347			
Volume to Capacity	0.09	0.13	0.01			
Queue Length 95th (ft)	7	0	1			
Control Delay (s)	12.0	0.0	0.4			
Lane LOS	B		A			
Approach Delay (s)	12.0	0.0	0.4			
Approach LOS	B					
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		31.5%		ICU Level of Service		A
Analysis Period (min)		15				

Wando Village Traffic Impact Analysis  
9: Site Access #1 & SC 41

2021 "Build" AM Peak Hour  
Build Conditions

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	35	9	135	37	10	230
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	39	10	150	41	11	256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	448	171			191	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	448	171			191	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			99	
cM capacity (veh/h)	564	873			1383	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	49	191	267			
Volume Left	39	0	11			
Volume Right	10	41	0			
cSH	608	1700	1383			
Volume to Capacity	0.08	0.11	0.01			
Queue Length 95th (ft)	7	0	1			
Control Delay (s)	11.4	0.0	0.4			
Lane LOS	B		A			
Approach Delay (s)	11.4	0.0	0.4			
Approach LOS	B					
Intersection Summary						
Average Delay		1.3				
Intersection Capacity Utilization		30.2%		ICU Level of Service		A
Analysis Period (min)		15				

## APPENDIX 2



## Red Bay Environmental

July 31, 2014

Pastime Amusement Company  
211 King Street, Suite 300  
Charleston, South Carolina 29401

C/o: Mr. Steve Dudash  
Via email: [sdudash@davisfloyd.com](mailto:sdudash@davisfloyd.com)

**RE: Jurisdictional Wetland/Waters of the United States Delineation  
70.37 Acre Tuxbury Tract  
TMS #263-00-04-001  
Cainhoy, Berkeley County, South Carolina**

Dear Mr. Dudash:

The field delineation of jurisdictional wetlands/waters of the United States located within the above referenced tract has been completed and subsequently surveyed by Thomas & Hutton, Inc. The delineated jurisdictional wetlands/waters of the United States identified include both freshwater wetlands and critical area which are of common distribution throughout the lower coastal plain of South Carolina. These areas were identified and delineated in the field in accordance with the directives of the *U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual* and the October 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region*.

The delineation of on-site critical areas was largely based on the presence of saltwater tolerant vegetation and exposure to the normal daily tidal cycle. Freshwater wetland areas were delineated based upon the presence of hydric soils, hydrophytic vegetation and near surface wetland hydrology. All three of these parameters are required to be present for wetland boundary determination.

The attached review exhibit prepared by Thomas & Hutton Engineering Company depicting the surveyed jurisdictional wetland/waters of the United States boundaries is an accurate representation of the field delineation that was performed by Red Bay Environmental and represents the extent of wetlands within the tract boundaries. The delineation of the tract resulted in 2.62 acres of on-site freshwater wetlands and 6.83 acres of critical area. We are currently in progress on seeking verification of the on-site wetlands/waters of the United States delineation from the US Army Corps of Engineers and certification of the delineated on-site critical area boundaries from the SCDHEC Office of Ocean and Coastal Resource Management.

Please contact me at (843) 810-3311 with any questions regarding this material. We will keep you posted on the continued regulatory coordination on this project with regards to the US Army Corps

of Engineers and the SCDHEC Office of Ocean and Coastal Resource Management. Thank you for the opportunity of continuing to assist you with the Natural Resources services associated with the project.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Goff', enclosed within a circular scribble.

Judson A. Goff

Attachments: Wetland Survey (Review) Exhibit prepared by Thomas & Hutton Engineering Co.



THE SITE SHOWN ON THIS PLAT IS A REPRESENTATION OF THE PROPERTY OF THE SURVEYOR. THE PROPERTY IS NOT GUARANTEED BY THE SURVEYOR. THE SURVEYOR IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS. THE SURVEYOR IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS. THE SURVEYOR IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS.

SIGNATURE DATE  
THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.



MATCH LINE - SHEET 2  
MATCH LINE - SHEET 3

WANDO RIVER

S.C. HIGHWAY 41  
R/W VARIES

TURKEY FARM ROAD  
R/W VARIES

PASTIME AMUSEMENT COMPANY ETAL  
TMS# 283-00-04-001  
70.37 AC TOTAL

UPLAND 1  
30.24 acres

UPLAND 1  
50.4 acres

WETLAND "A"  
4.000 sq ft  
0.094 acres

WETLAND "B"  
9.965 sq ft  
0.229 acres

WETLAND "C"  
35.672 sq ft  
0.819 acres

- NOTES
1. ALL INFORMATION ON THIS PLAT IS A REPRESENTATION OF THE PROPERTY OF THE SURVEYOR. THE PROPERTY IS NOT GUARANTEED BY THE SURVEYOR. THE SURVEYOR IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS. THE SURVEYOR IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS.
  2. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  3. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  4. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  5. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  6. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  7. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  8. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  9. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.
  10. THE SURVEYOR'S SEAL IS VALID FOR FIVE YEARS FROM THE DATE OF THE SIGNATURE. SUBJECT TO THE CAUTIONARY LANGUAGE ABOVE.

VICINITY MAP not to scale

- LEGEND
- 1. SURVEY POINT (NO MONUMENT)
  - 2. CONCRETE MONUMENT (FOUND)
  - 3. CONCRETE MONUMENT (SET)
  - 4. IRON PIPE (FOUND)
  - 5. IRON PIPE (SET)
  - 6. IRON REBAR (FOUND)
  - 7. IRON REBAR (SET)
  - 8. WETLANDS AREA



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ENGINEERING ACT OF 1968, AS AMENDED, AND THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTT GUNN III  
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR  
LICENSE NO. 10792

WETLAND SURVEY  
OF TRACT A  
CONTAINING  
70.37 AC.

NEAR CANNON  
BERKELEY COUNTY, SC.  
prepared for  
PASTIME AMUSEMENT COMPANY

No.	Page	By	Date

THOMAS & HUTTON  
Engineering | Surveying | Planning | GIS | Consulting  
682 Johnnie Dodds Blvd., Suite 100  
PO Box 1522  
Mt. Pleasant, SC 29465-1522  
p 843.849.0200 f 843.849.0203  
www.thomashutton.com

100 0 100 200  
1 INCH = 100 FEET

plat drawn reviewed field crew  
07/01/14 JP 06/22/14 TB

job 24994 SHEET 2 OF 4

THE AREA SHOWN ON THIS PLAT IS A REPRESENTATION OF  
DIVISIVE PERMIT AUTHORITY FOR THE SUBJECT PROPERTY  
CRITICAL AREAS, BY THEIR NATURE, ARE DYNAMIC AND SUBJECT  
TO CHANGE OVER TIME IN ACCORDANCE WITH THE PERMIT AUTHORITY  
OF THE DEPARTMENT OF THE ENVIRONMENT AND NATURAL RESOURCES  
AND THE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION  
CRITICAL AREA ON THE SUBJECT PROPERTY, WHETHER SHOWN  
HEREIN OR NOT.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_  
THE CRITICAL LINE SHOWN ON THIS PLAT IS VALID FOR FIVE YEARS  
FROM THE DATE OF THIS SIGNATURE, SUBJECT TO THE  
CAUTIONARY LANGUAGE ABOVE.



WANDO RIVER

UPLAND 1  
50.24 acres

PASTIME AMUSEMENT COMPANY ET AL  
THIS SURVEY FOR  
70.37 AC TOTAL

PASTIME AMUSEMENT COMPANY ET AL  
THIS SURVEY FOR  
70.37 AC TOTAL

UPLAND 1  
50.24 acres

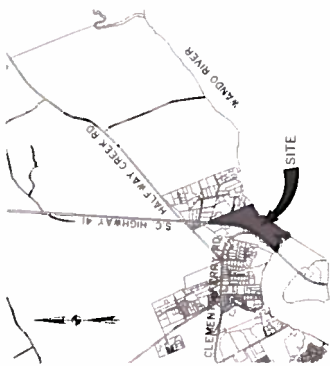
MATCH LINE - SHEET 2  
MATCH LINE - SHEET 3

S.C. HIGHWAY 41  
R/W VARIES

WANDO RIVER

#### NOTES

1. ACCORDING TO THE FIRM MAP NO. 4500G, PANEL 7310, DATED 10/16/03, THE PROPERTY SHOWN ON THIS PLAT IS LOCATED IN FLOOD HAZARD ZONE AE.
2. FOUNDATIONAL AND DIRECTIONAL DATA SHOWN ON THIS SURVEY ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83). DISTANCES SHOWN ARE IN FEET AND DECIMALS THEREOF.
3. THE SURVEY WAS ALSO CONDUCTED ON THE SAME DATE AS THE SURVEY FOR THE SIGNATURE AND EMBOSSED SEAL OF THE LAND SURVEYOR.
4. A TITLE SEARCH WAS NOT PERFORMED BY THOMAS & HUTTON ENGINEERING LLP.
5. AT THE TIME OF THIS SURVEY.
6. THE PROPERTY PLATTED HEREON IS SUBJECT TO ALL EASEMENTS AND ENCUMBRANCES OF RECORD.
7. THE POSITION OF UNDERGROUND UTILITIES SHOWN ON THIS DRAWING IS BASED UPON THE LOCATION OF SURFACE APPROPRIATE AND/OR SURFACE MARKINGS AND SHOULD BE CONSIDERED APPROXIMATE.
8. FOR CLARITY, SOME LINE LABELS ARE OMITTED FROM THE WETLANDS FOOTPRINT LINES.



**VICINITY MAP** not to scale

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- LEGEND**
- 1. FOUNDATION
  - 2. MEASURE POINT (NO MONUMENT)
  - 3. CONCRETE MONUMENT (FOUND)
  - 4. CONCRETE MONUMENT (SET)
  - 5. IRON PIPE (FOUND)
  - 6. IRON PIPE (SET)
  - 7. IRON REBAR (FOUND)
  - 8. IRON REBAR (SET)
  - 9. CRITICAL AREA WETLAND AREA
  - 10. WETLANDS AREA



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE STANDARDS AND PRACTICES OF THE PROFESSION OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

T. ELLIOTT GUNN III  
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR  
LICENSE NO. 10297

## WETLAND SURVEY OF TRACT A CONTAINING 70.37 AC.

NEAR CANNHOY  
BERKELEY COUNTY, S.C.  
prepared for  
**PASTIME AMUSEMENT COMPANY**

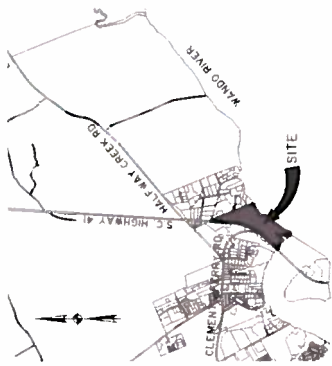
No.	Revised	By	Date

**THOMAS & HUTTON**  
Engineering | Surveying | Planning | GIS | Consulting  
682 Johnnie Dodds Blvd., Suite 100  
PO Box 1522  
Mt. Pleasant, SC 29465-1522  
p 843.849.0200 f 843.849.0203  
www.thomashutton.com

100 0 100 200  
1 INCH = 100 FEET

plot drawn reviewed feq crew  
07/01/14 Jp 06/22/14 TB

job 24994 SHEET 3 OF 4



**VICINITY MAP** not to scale

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- LEGEND**
- REMARK: (NO MONUMENT)
  - CONCRETE MONUMENT (FOUND)
  - IRON PIPE (FOUND)
  - IRON PIPE (SET)
  - IRON REBAR (FOUND)
  - IRON REBAR (SET)
  - CRITICAL TOW WETLAND AREA
  - WETLANDS AREA



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL EXCEEDS THE REQUIREMENTS FOR A CLASS 'A' SURVEY AS SPECIFIED THEREIN.

J. ELLIOTT GUNN III  
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR  
LICENSE NO. 10949

# WETLAND SURVEY OF TRACT A CONTAINING 70.37 AC.

NEAR CANHOY  
BERKELEY COUNTY, SC

prepared for  
**PASTIME AMUSEMENT COMPANY**

No.	Revision	By	Date

**THOMAS & HUTTON**  
Engineering | Surveying | Planning | GIS | Consulting

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www.thomasandhutton.com



plot drawn reviewed  
07/01/14 JP leq 06/22/14 TB  
JOB 2499A SHEET 4 OF 4

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L101	S 25°04'04"E	28.74	L601	N 78°46'30"W	31.67
L102	N 2°24'35"E	31.67	L602	N 78°46'30"W	31.67
L103	N 2°24'35"E	31.67	L603	N 78°46'30"W	31.67
L104	N 2°24'35"E	31.67	L604	N 78°46'30"W	31.67
L105	N 2°24'35"E	31.67	L605	N 78°46'30"W	31.67
L106	N 2°24'35"E	31.67	L606	N 78°46'30"W	31.67
L107	N 2°24'35"E	31.67	L607	N 78°46'30"W	31.67
L108	N 2°24'35"E	31.67	L608	N 78°46'30"W	31.67
L109	N 2°24'35"E	31.67	L609	N 78°46'30"W	31.67
L110	N 2°24'35"E	31.67	L610	N 78°46'30"W	31.67

LINE	FADDS	LENGTH	CH BEARING	DELTA
C1	2+05.32	100.00	S 2°24'35"E	31.67
C2	2+05.32	100.00	S 2°24'35"E	31.67
C3	2+05.32	100.00	S 2°24'35"E	31.67
C4	2+05.32	100.00	S 2°24'35"E	31.67

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L111	S 0°15'57"E	12.74	L611	N 65°59'05"E	48.31
L112	S 0°15'57"E	12.74	L612	N 65°59'05"E	48.31
L113	S 0°15'57"E	12.74	L613	N 65°59'05"E	48.31
L114	S 0°15'57"E	12.74	L614	N 65°59'05"E	48.31
L115	S 0°15'57"E	12.74	L615	N 65°59'05"E	48.31
L116	S 0°15'57"E	12.74	L616	N 65°59'05"E	48.31
L117	S 0°15'57"E	12.74	L617	N 65°59'05"E	48.31
L118	S 0°15'57"E	12.74	L618	N 65°59'05"E	48.31
L119	S 0°15'57"E	12.74	L619	N 65°59'05"E	48.31
L120	S 0°15'57"E	12.74	L620	N 65°59'05"E	48.31

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L121	S 0°15'57"E	12.74	L621	N 65°59'05"E	48.31
L122	S 0°15'57"E	12.74	L622	N 65°59'05"E	48.31
L123	S 0°15'57"E	12.74	L623	N 65°59'05"E	48.31
L124	S 0°15'57"E	12.74	L624	N 65°59'05"E	48.31
L125	S 0°15'57"E	12.74	L625	N 65°59'05"E	48.31
L126	S 0°15'57"E	12.74	L626	N 65°59'05"E	48.31
L127	S 0°15'57"E	12.74	L627	N 65°59'05"E	48.31
L128	S 0°15'57"E	12.74	L628	N 65°59'05"E	48.31
L129	S 0°15'57"E	12.74	L629	N 65°59'05"E	48.31
L130	S 0°15'57"E	12.74	L630	N 65°59'05"E	48.31

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L131	S 0°15'57"E	12.74	L631	N 65°59'05"E	48.31
L132	S 0°15'57"E	12.74	L632	N 65°59'05"E	48.31
L133	S 0°15'57"E	12.74	L633	N 65°59'05"E	48.31
L134	S 0°15'57"E	12.74	L634	N 65°59'05"E	48.31
L135	S 0°15'57"E	12.74	L635	N 65°59'05"E	48.31
L136	S 0°15'57"E	12.74	L636	N 65°59'05"E	48.31
L137	S 0°15'57"E	12.74	L637	N 65°59'05"E	48.31
L138	S 0°15'57"E	12.74	L638	N 65°59'05"E	48.31
L139	S 0°15'57"E	12.74	L639	N 65°59'05"E	48.31
L140	S 0°15'57"E	12.74	L640	N 65°59'05"E	48.31

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L141	S 0°15'57"E	12.74	L641	N 65°59'05"E	48.31
L142	S 0°15'57"E	12.74	L642	N 65°59'05"E	48.31
L143	S 0°15'57"E	12.74	L643	N 65°59'05"E	48.31
L144	S 0°15'57"E	12.74	L644	N 65°59'05"E	48.31
L145	S 0°15'57"E	12.74	L645	N 65°59'05"E	48.31
L146	S 0°15'57"E	12.74	L646	N 65°59'05"E	48.31
L147	S 0°15'57"E	12.74	L647	N 65°59'05"E	48.31
L148	S 0°15'57"E	12.74	L648	N 65°59'05"E	48.31
L149	S 0°15'57"E	12.74	L649	N 65°59'05"E	48.31
L150	S 0°15'57"E	12.74	L650	N 65°59'05"E	48.31

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L151	S 0°15'57"E	12.74	L651	N 65°59'05"E	48.31
L152	S 0°15'57"E	12.74	L652	N 65°59'05"E	48.31
L153	S 0°15'57"E	12.74	L653	N 65°59'05"E	48.31
L154	S 0°15'57"E	12.74	L654	N 65°59'05"E	48.31
L155	S 0°15'57"E	12.74	L655	N 65°59'05"E	48.31
L156	S 0°15'57"E	12.74	L656	N 65°59'05"E	48.31
L157	S 0°15'57"E	12.74	L657	N 65°59'05"E	48.31
L158	S 0°15'57"E	12.74	L658	N 65°59'05"E	48.31
L159	S 0°15'57"E	12.74	L659	N 65°59'05"E	48.31
L160	S 0°15'57"E	12.74	L660	N 65°59'05"E	48.31

LINE	BEARING	LENGTH	LINE	BEARING	LENGTH
L161	S 0°15'57"E	12.74	L661	N 65°59'05"E	48.31
L162	S 0°15'57"E	12.74	L662	N 65°59'05"E	48.31
L163	S 0°15'57"E	12.74	L663	N 65°59'05"E	48.31
L164	S 0°15'57"E	12.74	L664	N 65°59'05"E	48.31
L165	S 0°15'57"E	12.74	L665	N 65°59'05"E	48.31
L166	S 0°15'57"E	12.74	L666	N 65°59'05"E	48.31
L167	S 0°15'57"E	12.74	L667	N 65°59'05"E	48.31
L168	S 0°15'57"E	12.74	L668	N 65°59'05"E	48.31
L169	S 0°15'57"E	12.74	L669	N 65°59'05"E	48.31
L170	S 0°15'57"E	12.74	L670	N 65°59'05"E	48.31

## APPENDIX 3



PO Box B  
Charleston, SC 29402  
103 St. Philip Street (29403)  
(843) 727-6800  
www.charlestonwater.com

**Board of Commissioners**  
Thomas B. Pritchard, Chairman  
David E. Rivers, Vice Chairman  
William E. Koopman, Jr., Commissioner  
Mayor Joseph P. Riley, Jr. (Ex-Officio)  
Councilmember Dean C. Riegel (Ex-Officio)

**Officers**  
Kin Hill, P.E., Chief Executive Officer  
Dorothy Harrison, Chief Administrative Officer  
Wesley Ropp, CMA, Chief Financial Officer  
Andy Fahey, Chief Operating Officer  
Mark Cline, P.E., Capital Projects Officer

8/4/2014

Mr. Stephen Dudash  
Davis & Floyd, Inc.  
P.O. Box 61599  
Charleston, SC 29419

Re: Water Availability to TMS #263-00-04-001 to serve approximately 80 single family residential units, approximately 560 multi family residential units, 30,000 sf of commercial units, one restaurant

Dear Mr. Dudash,

This letter is to certify our willingness and ability to provide water to the above referenced site in Berkeley County, South Carolina. We currently have a 30" water main in the right-of-way of Hwy. 41 that your property may be served from. Please be advised that it may be necessary to loop the proposed mains into the existing system to achieve adequate pressures. This review does not supplant any other review as required by governing authorities and municipalities. It will of course be a developer responsibility to ensure there are adequate pressures and quantities on this line to serve this site with domestic water/fire flow and not negatively impact the existing developments. Please be advised any extensions or modification to the infrastructure as well as any additional fire protection will be a developer expense. All fees and costs associated with providing water service to this site will be a developer expense. This letter does not reserve capacity in the Charleston Water System infrastructure and it is incumbent upon the developer or his agent to confirm the availability herein granted past 12 months of this correspondence.

The Charleston Water System certifies the availability of service only insofar as its rights allow. Should access to our existing main/mains be denied by appropriate governing authorities, the Charleston Water System will have no other option than to deny service.

This letter is not to be construed as a letter of acceptance for operation and maintenance from the Department of Health and Environmental Control.

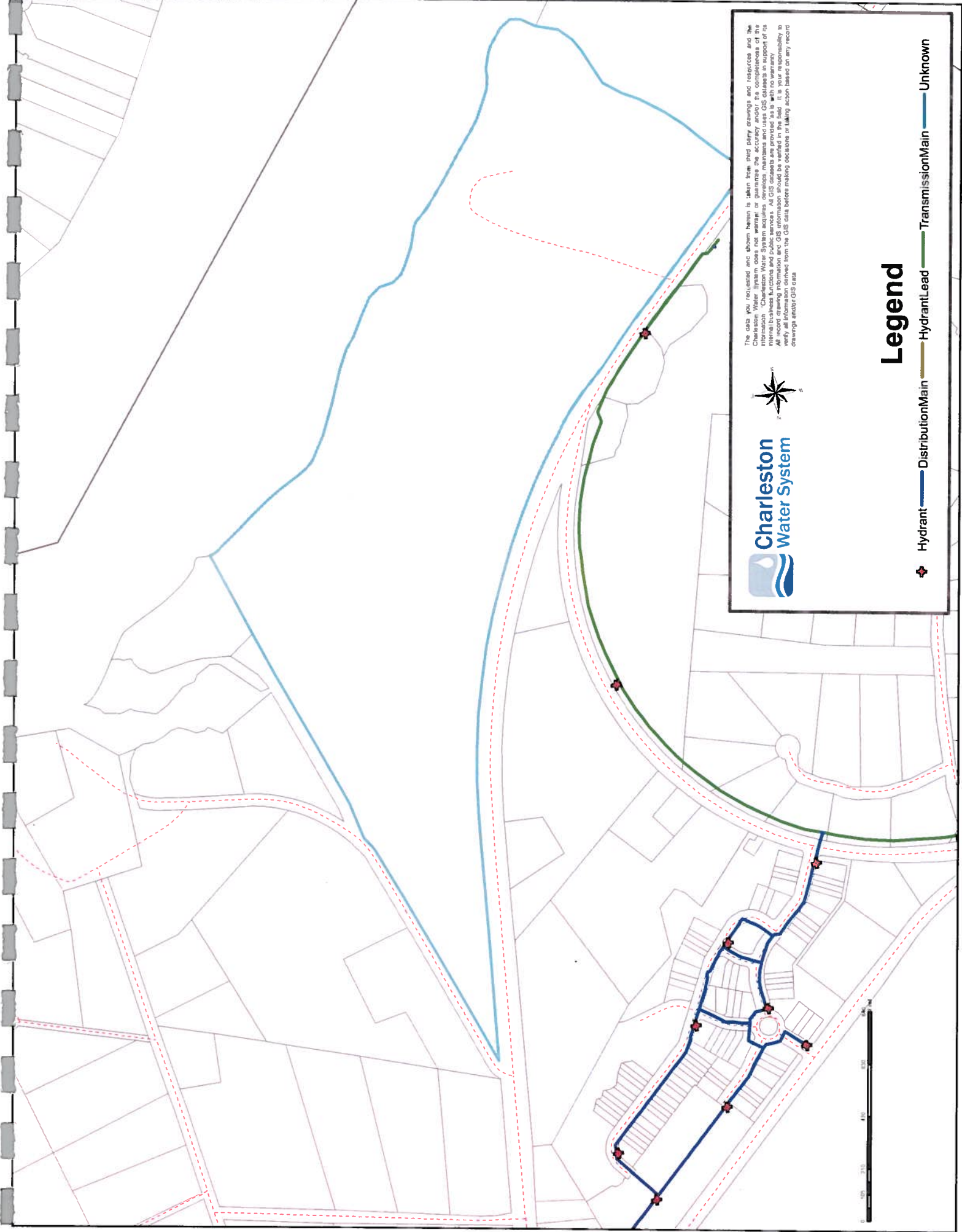
If there are any questions pertaining to this letter, please do not hesitate to call on me at (843) 727-6870.

Sincerely,

A handwritten signature in blue ink that reads "Cheryl L. Boyle".

Cheryl L. Boyle  
Engineering Assistant  
Charleston Water System

cc: file



The data you requested and shown herein is taken from third party drawings and resources and the Charleston Water System does not warrant or guarantee the accuracy and/or the completeness of the information. Charleston Water System acquires, develops, maintains and uses GIS datasets in support of its operations and the information shown on this map is derived from these datasets. All record drawing information and GIS information should be verified in the field. It is your responsibility to verify all information derived from the GIS data before making decisions or taking action based on any record drawings and/or GIS data.

## Legend

- Hydrant
- DistributionMain
- HydrantLead
- TransmissionMain
- Unknown



PO Box B  
Charleston, SC 29402  
103 St. Philip Street (29403)  
(843) 727-6800  
www.charlestonwater.com

**Board of Commissioners**  
Thomas B. Pritchard, Chairman  
David E. Rivers, Vice Chairman  
William E. Koopman, Jr., Commissioner  
Mayor Joseph P. Riley, Jr. (Ex-Officio)  
Councilmember Dean C. Riegel (Ex-Officio)

**Officers**  
Kin Hill, P.E., Chief Executive Officer  
Dorothy Harrison, Chief Administrative Officer  
Wesley Ropp, CMA, Chief Financial Officer  
Andy Fairey, Chief Operating Officer  
Mark Cline, P.E., Capital Projects Officer

8/4/2014

Mr. Stephen Dudash  
Davis & Floyd, Inc.  
P.O. Box 61599  
Charleston, SC 29419

Re: Sewer Availability to TMS #263-00-04-001 to serve approximately 80 single family residential units, approximately 560 multi family residential units, 30,000 sf of commercial units, one restaurant

Dear Mr. Dudash,

This letter is to certify our willingness and ability to provide wastewater collection service to the above referenced site in Berkeley County, South Carolina. Wastewater collection service to this site may be made available via an extension of the existing 18" gravity main going to pump station 171, located on TMS#263-16-01-067, in accordance with CWS Approach Main Policy S88001 available on our website. Any subdividing of the subject property subsequent to this correspondence will require a review process of the civil engineering plans to ensure compliance with the Charleston Water System minimum standards. Any extensions and/or modifications to the infrastructure to serve this site will be a developer expense. Please be advised that wastewater impact fees, wastewater tap fees, change-in-use fees, and/or cost to extend fees will be due prior to connection of any Charleston Water System's sewer system. This letter does not reserve capacity in the Charleston Water System infrastructure and it is incumbent upon the developer or his agent to confirm the availability herein granted past 12 months of this correspondence.

The Charleston Water System certifies the availability of service only insofar as its rights allow. Should access to our existing sewer main/mains be denied by appropriate governing authorities, the Charleston Water System will have no other option than to deny service.

This letter is not to be construed as a letter of acceptance for operation and maintenance from the Department of Health and Environmental Control.

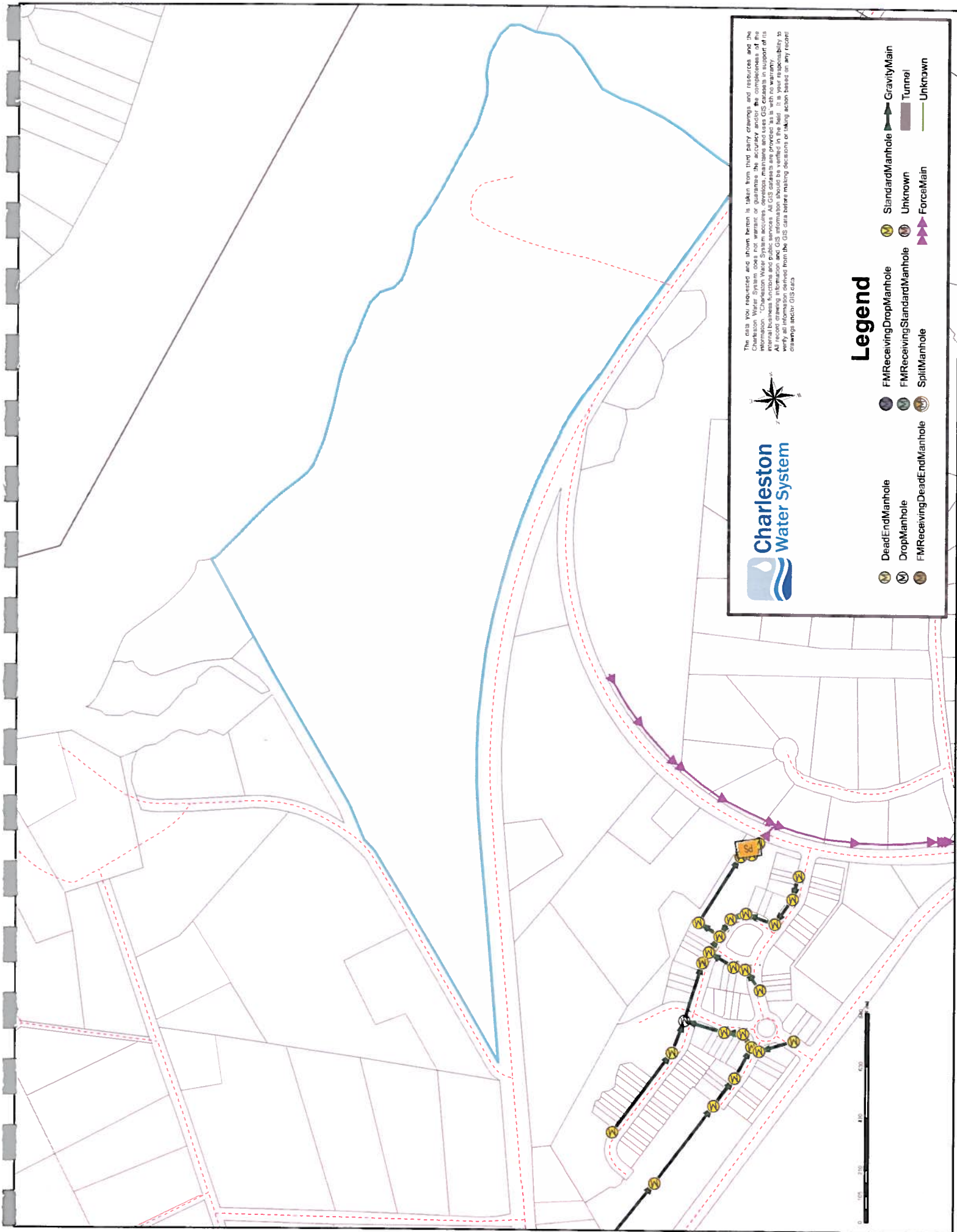
If there are any questions pertaining to this letter, please do not hesitate to call on me at (843) 727-6870.

Sincerely,

A handwritten signature in blue ink, appearing to read "Cheryl Boyle".

Cheryl L. Boyle  
Engineering Assistant  
Charleston Water System

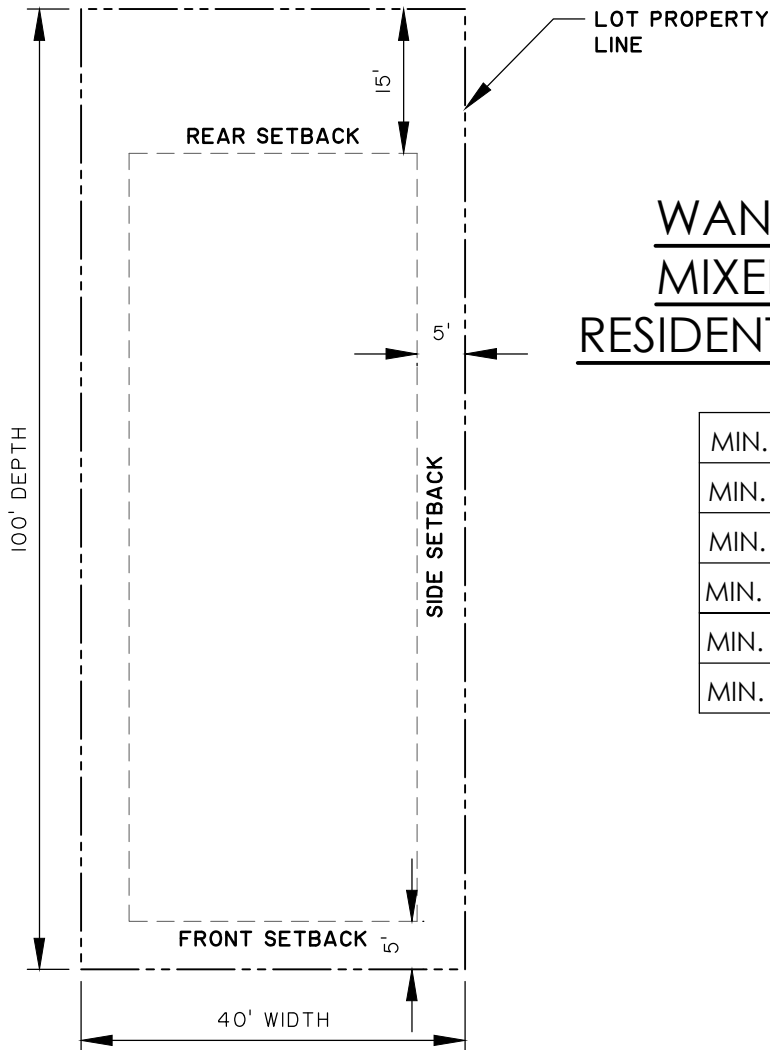
cc: file



The data you requested and shown herein is taken from third party drawings and resources and the Charleston Water System does not warrant or guarantee the accuracy and/or the completeness of the information. Charleston Water System acquires, develops, maintains and uses GIS datasets in support of its internal business functions and public services. All GIS datasets are provided as is with no warranty. Users of this information should be verified in the field. It is your responsibility to verify all information derived from the GIS data before making decisions or taking action based on any future drawings and/or GIS data.

# Legend

- DeadEndManhole
- DropManhole
- FMRReceivingDeadEndManhole
- FMRReceivingDropManhole
- FMRReceivingStandardManhole
- SplitManhole
- StandardManhole
- Unknown
- ForceMain
- GravityMain
- Tunnel
- Unknown



## WANDO VILLAGE PUD MIXED-USE DETACHED RESIDENTIAL LOT STANDARDS

MIN. LOT SIZE	4,000 SF
MIN. LOT WIDTH	40'
MIN. LOT DEPTH	100'
MIN. FRONT YARD	5'
MIN. REAR YARD	15'
MIN. SIDE YARD	5'



**CITY OF CHARLESTON  
ZONING APPROVAL**

BY: *John C. Dauterive* DATE: 04/11/2018

## WANDO VILLAGE

### MIXED-USE DETACHED RESIDENTIAL LOT STANDARDS

CLIENT:

ASHTON WOODS

LOCATION: CITY OF CHARLESTON, SC

DATE: 04/11/2018

JOB NUMBER: J-25306.0100

DRAWN BY: MLA

REVIEWED BY: TMW

SHEET: EX.1

SCALE: 1" = 20'



682 Johnnie Dodds Blvd. • Suite 100  
Mt. Pleasant, SC 29464 • 843.849.0200

[www.thomasandhutton.com](http://www.thomasandhutton.com)